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ANNUAL REPORT

ON THE

GENERAL SANITARY CONDITION OF THE BURGH

BY

JOHN FYFE, Mem. Roy. San. Assoc. Scot.,
Assoc. M. Inst. S.E., Assoc. M. Roy. San. Inst.

For the Year 1925.

STIRLING:
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Sanitary Department, Municipal Buildings,
Stirling, 30th April, 1926.

To the Honourable the Scottish Board of Health, and the
Provost, Magistrates, and Councillors of the
Royal Burgh of Stirling.

Ladies and Gentlemen,

I have the honour of submitting to you my Annual Report upon the General Sanitary Condition of the Burgh, and the work accomplished by the Sanitary Department during the year 1925.

The Report has been prepared in accordance with the requirements of the Scottish Board of Health.

I have the honour to remain,

Ladies and Gentlemen,

Your obedient Servant,

JOHN FYFE.

The Scottish Board of Health call upon every Sanitary Inspector of a Burgh to prepare annually a Report for the year ending 31st December, which Report shall contain:—

(a) A general account of the sanitary state of the Burgh as regards water supply, drainage, scavenging, nuisances, etc., together with any suggestions for its improvement. In populous and closely-built centres, where closets on the conservancy system remain, the Report should show the number converted to the water carriage system during recent years, as well as the number of privies, earth closets and privy middens remaining at the end of the year. Attention is particularly directed to the Board's circular of 1st September, 1925, in which they requested that Sanitary Inspectors should deal specially with the latter subject in their Report for the current year, and should also give the additional information therein requested, viz. :—Particulars as to (1) the number of common water closets in use in the burgh, shewing separately the number serving 2, 3, 4, and 5 or more tenants respectively ; (2) the number of houses without water supply and sink inside the house ; and (3) the number of (a) dry closets, (b) privy middens, and (c) ashpits, shewing for each separately the number serving 2, 3, 4, and 5 or more tenants respectively.

(b) An account of his general inspections, and of any special inspections or enquiries, including the supervision of slaughter-houses and other offensive trades, and the sanitary condition of schools and of factories and workshops.

(c) An account of the condition of the common lodging-houses.

(d) An account of the condition of the dairies, cowsheds, and milkshops.

(e) An account of the condition of the burial grounds.

(f) An account of his proceedings under the Burgh Police Act.

(g) A report on the work done by the Local Authority under the Sale of Food and Drugs Acts, and the Milk and Dairies Acts, and relative Regulations.

(h) Observations on food inspection, unsound food, and the sanitary condition of premises where foods are manufactured, prepared, stored, or exposed for sale, indicating any important respects in which existing powers have been found inadequate for dealing with insanitary conditions at such places.

(i) An account of any proceedings under the Rag Flock Act, 1911.

(j) A statement, in such form as the Scottish Board of Health may from time to time direct, of his proceedings during the year.

The coming into force of the Housing (Scotland) Act, 1925, on the 1st July, and the Milk and Dairies (Scotland) Act, 1914, on the 1st September, were the only outstanding events in Public Health legislation during 1925.

The Housing Act reproduces in a consolidated form the permanent law relating to the housing of the working classes in Scotland.

The Milk and Dairies Act is one of very great importance. It provides for the registration of approved persons and premises, inspection of premises and cattle, improved methods of production and restriction to prevent the spread of milk-borne disease, especially clean milk production and the prevention of consuming milk from cows suffering from tuberculosis of the udder. It is a well-known fact that about 40 per cent of the cows in this country are suffering from tuberculosis, while 2 to 3 per cent are suffering from tuberculosis of the udder.

STATISTICS.

Valuation	£170,001
Census Population, 1921	21,345
Estimated Population	21,407
Population in No. 1 or Broad Street District	3,990
Population in No. 2 or Cowane Street District	8,480
Population in No. 3 or Port Street District	8,937
Area of Burgh in Acres	1,543
Density of Population (persons per acre)	14
No. 1 or Broad Street District (persons per acre)	43 (92 acres)
No. 2 or Cowane Street District (persons per acre)	16 (530 acres)
No. 3 or Port Street District (persons per acre)	10 (921 acres)
Inhabited Houses at May, 1926	5,030
No. 1 or Broad Street District—Inhabited Houses	1,008
No. 2 or Cowane Street District—Inhabited Houses	2,052
No. 3 or Port Street District—Inhabited Houses	1,970

MONTHLY MEAN METEOROLOGICAL RECORDS OF THE BURGH OF STIRLING.

From Observation Station at Sauchie House and Sunshine Recorder at High School. For the Year 1925.

Station:—Latitude, 56 degrees—7 minutes N.; Longitude, 3 degrees—56 minutes W.; Height above Mean Sea Level, 151 feet; Sunshine Recorder, 179 feet above M.S.L.

MONTH.	Barometric pressure in inches.	Temperature of atmosphere. Deg. Fahr. in shade.				Temperature of atmosphere. Deg. Fahr. in open.				Terrestrial radiation or minimum on grass.	Solar radiation (Black bulb).	Temperature 4 feet below the surface of the ground.	Temperature 1 foot below the surface of the ground.	Relative humidity of atmosphere (Saturation point, 100 per cent.).	Rainfall in inches.	Number of rainy days.	Bright sunshine in hours.	Percentage of possible sunshine.	Number of sunless days.	Number of gloomy and foggy days.	Direction of prevailing wind.	Mean wind force expressed in miles per hour.	Cloud amount (Beaufort scale).
		Maximum.	Minimum.	Monthly mean of maximum and minimum.	Range.	Maximum.	Minimum.	Monthly mean of maximum and minimum.	Range.														
January ...	29·88	45·6	36·0	40·8	9·6	47·6	35·1	41·3	12·5	32·9	57·1	45·3	39·9	86	4·95	20	23·0	10	17	10	W.	1·9	7
February ...	29·34	43·6	34·3	38·9	9·3	52·1	32·7	42·4	19·4	31·1	70·5	43·4	38·1	83	4·63	25	53·8	20	8	7	W.	2·8	7
March ...	30·02	47·4	36·1	41·7	11·3	62·7	34·5	48·6	28·2	31·7	93·1	42·2	40·0	75	1·47	10	149·1	41	3	2	W.N.W.	3·1	6
April ...	29·66	51·3	37·2	44·2	14·1	66·7	34·5	50·6	32·2	33·6	96·9	43·6	44·2	79	3·90	17	138·6	33	4	3	W.N.W.	2·8	7
May ...	29·59	56·5	44·8	50·6	11·7	65·2	47·2	56·2	18·0	42·0	101·9	46·6	50·9	68	6·29	27	111·2	22	5	7	W. S.W.	2·4	8
June ...	30·00	67·0	49·0	58·0	16·0	80·6	48·4	64·5	32·2	46·0	123·0	50·2	59·2	77	0·37	8	223·9	43	1	...	W.	1·9	6
July ...	29·81	68·2	52·7	60·4	15·5	81·3	54·2	67·7	27·1	...	117·1	53·9	60·1	79	1·04	7	159·1	30	6	6	W.	1·9	7
August ...	29·79	65·5	51·0	58·2	14·5	77·7	53·7	65·7	24·0	...	111·3	56·1	60·0	79	3·23	18	138·1	30	5	12	W.	1·9	7
September ...	29·76	58·0	44·0	51·0	14·0	73·3	44·1	58·7	29·2	41·0	104·0	55·2	53·1	82	2·79	18	137·7	36	5	9	W.	1·9	7
October ...	29·70	55·0	43·0	49·0	12·0	66·7	42·0	54·3	24·7	39·0	88·0	53·1	49·2	87	3·84	17	95·2	30	6	14	W.N.W.	2·8	7
November ...	29·88	41·5	30·8	36·2	10·7	53·0	29·5	41·2	23·7	26·6	67·6	51·6	40·1	79	0·51	9	64·9	26	11	7	W.N.W.	2·4	6
December ...	29·51	40·3	28·5	34·4	11·8	47·4	28·1	37·7	19·3	24·8	52·3	45·1	34·2	83	3·44	18	35·1	16	21	11	W.N.W.	4·2	7
Mean for Year 1925	**29 75**	**53.3**	**40.8**	**46.6**	**12.5**	**65.4**	**40.3**	**52.4**	**25.1**	**34.8**	**98.7**	**48.9**	**47.4**	**80**	**36.46**	**194**	**1329.7**	**28**	**92**	**88**	**W.**	**2.5**	**7**
Mean for Year 1924	29·71	53·4	41·6	47·5	11·8	61·8	40·8	51·3	21·10	37·9	86·2	47·9	47·8	84	39·99	266	1083·2	23	142	185	W.	2·1	7
,, ,, 1923	29·43	53·3	41·6	47·4	11·7	...	...	...	...	39·5	91·2	48·6	48·1	80	37·86	214	1172·2	...	84	162	W.N.W.	3·2	8
,, ,, 1922	29·73	53·0	40·1	46·5	12·9	...	...	...	...	37·1	89·7	47·8	48·8	81	30·73	181	1278·7	24	82	203	W.	2·7	7

WATER SUPPLY.

The water supply from the catchment area on Touch Hills—extending to about 1,300 acres—is of excellent quality, and the quantity is abundant. The 3 reservoirs have a holding capacity of 185,409,350 gallons. From a large reservoir at North Third, which is the joint property of Stirling and Grangemouth burghs, an additional daily supply of 733,000 gallons is received. The whole of this supply is passed through a settling pond, which has a holding capacity of 3,213,000 gallons. All this water is passed through 4 sand filters, the total area of which is 15,808 square feet, and the beds can efficiently deal with approximately 1,106,560 gallons daily. The water after being filtered passes into 2 storage tanks 100 feet in diameter and 16 feet deep, together holding about one day's supply. The undertaking is supervised by the Water Commissioners and their Engineer, and they are very zealous in maintaining the works in a high state of efficiency.

Samples of water were submitted for chemical and bacteriological examination to our Public Analysts (Messrs. R. R. Tatlock & Thomson, Glasgow) and Bacteriologist (Professor Carstairs Douglas, Glasgow). The results of the analysis and examination are contained in the following reports :—

Chemical Examinations.

Taken from Tap in Municipal Buildings.

	Grains per Gallon
Mineral Matter	4·49
Organic Matter	0·80
Total Solid Matter	5·29
Nitrates and Nitrites	None.
Free Ammonia...	0·002
Albuminoid Ammonia	0·006
Total Ammonia ...	0·008
Temporary Hardness ...	1·37
Permanent Hardness ...	1·24
Total Hardness ...	2·61
Colour (Glasgow Supply=10)	15

The sample, as received, was free from suspended matter, and had a slight brown tint, this being due to the presence of a little unobjectionable mossy matter.

The analysis shows that this water is free from animal matter or sewage, and is in every respect suitable for drinking and other dietetic purposes.

It is also a soft water and well adapted for washing.

(Signed) R. R. TATLOCK & THOMSON.

Bacteriological Examination.

Taken from Tap in Municipal Buildings.

Total organisms per 1 cubic centimetre at 37° Centigrade (98·6° Fahrenheit) = 5.

Evidence of B. Coli in

0·1 c.c.	none.
0·5 c.c.	none.
1·0 c.c.	none.
5·0 c.c.	none.
10·0 c.c.	none.
50·0 c.c.	positive.

This water is quite satisfactory.

(Signed) CARSTAIRS DOUGLAS, M.D., D.Sc., F.R.S.E.

A sample of water from the Butt Well was taken, and forwarded to our Public Analysts for examination. The Analysts' report is in the following terms :—

Chemical Examination.

	Grains per Gallon
Mineral Matter	25·41
Organic Matter	0·30
Total Solid Matter	25·71
Nitrates as Nitrate of Soda	0·680
Free Ammonia...	0·010
Albuminoid Ammonia	0·004
Total Ammonia ...	0·014
Temporary Hardness ...	7·02
Permanent Hardness ...	9·67
Total Hardness ...	16·69

The sample, as received, was free from suspended matter and was practically colourless.

The presence of so much Nitrates, as well as of Free Ammonia, shows that this water has been contaminated with animal matter, and it may be regarded as a mixture of one part of average sewage with about 35 parts of pure water, the Ammonia originally present having become nearly all nitrified. In our opinion the water cannot be regarded as suitable for drinking and other dietetic purposes. This is a hard water, and would cause very considerable inconvenience and waste of soap if used for washing.

(Signed) R. R. TATLOCK & THOMSON.

The Butt Well is a large natural spring issuing at the Back Walk and immediately below the cemetery. In 1920, when the last sample was taken, the Analyst reported that the water contained one part of sewage with about 49 parts of pure water, so that the pollution now is even greater than in 1920. The Town Council have erected a Notice Board drawing the attention of the public to the fact that the water is not regarded as suitable for drinking purposes.

STIRLING WATERWORKS—MONTHLY STATEMENT OF SUPPLY.

Year 1925	Daily Average Consumpt in Gallons	Gallons per head per day, including Manufactories	Domestic Consumpt in Gallons per head per day
January	1,380,967	58·02	38·29
February	1,397,143	58·68	38·95
March	1,428,709	60·02	50·29
April	1,389,333	58·36	38·63
May	1,399,290	58·78	39·05
June	1,495,667	62·83	43·10
July	1,472,258	61·85	42·12
August	1,448,710	60·82	41·09
September	1,462,667	61·44	41·71
October	1,514,516	63·62	43·89
November	1,753,000	73·64	53·91
December	1,758,387	73·87	54·14
Total	17,900,647	......	......
Means	1,491,720	62·66	43·76

Population served—23,803.

RAINFALL OVER CATCHMENT AREA ON TOUCH HILLS AND OVER BURGH.

Month	Over Touch Hills in Inches	Over Burgh in Inches
January	7·23	4·95
February	6·61	4·63
March	2·11	1·47
April	5·70	3·90
May	7·53	6·29
June	0·58	0·37
July	1·38	1·04
August	5·74	3·23
September	3·97	2·79
October	4·51	3·84
November	0·84	0·51
December	4·61	3·44
Totals	50·81	36·46

SEWAGE DISPOSAL.

The sewage from the town is discharged into the River Forth from 10 outfall sewers :—

6-feet culvert at Forthside.

2-feet pipe between the Old and New Bridges.

2-feet pipe at Kildean.

15-inch pipe at Government Jetty.

5, 12-inch pipes opposite Millar Place, Forrest Road, and at Pier, Ferry and Slaughterhouse.

6-inch pipe at Salt Works, besides 4, 6-inch pipes from detached buildings and institutions.

The daily dry-weather flow amounts to about 1,300,000 gallons, while the wet-weather flow amounts to about 3,838,496 gallons per 24 hours. The normal velocity of the river is about one mile per hour, and is tidal up to the Cruive Dykes, one and a quarter miles above the burgh boundaries. The volume of river water flowing past any part of the river in 24 hours is 950,400,000 gallons. For a dilution calculation, if we estimate that half the wet-weather flow enters the river in 8 hours, the dilution is equal to 165 times, but if the discharge of wet-weather flow is spread over the whole of the 24 hours the dilution would equal 248 times, or an average masking of sewer with river water equal to 207 times.

The Burgh Engineer has supplied me with the following particulars regarding the laying down of new sewers and the reconstruction of existing sewers :—

(1) The diverting of the Raploch Burn from its natural channel in the direction of the Back o' Hill, now carried along the Raploch Road in 24-inch concrete pipes to the extent of 838 yards.

(2) New 12-inch fireclay pipe sewer at Broomridge—306 yards.

(3) New 15-inch to 18-inch fireclay pipe sewer at Drip Road—370 yards.

(4) New 9-inch fireclay pipe sewer for Bannockburn Housing Scheme—697 yards.

(5) New 9-inch fireclay pipe sewer for Drip Road Housing Scheme—360 yards.

(6) New 9-inch open-jointed fireclay pipes laid in old channel of Raploch Burn to the extent of 700 yards.

(7) Repairing and altering sewer at Drummond Place, Park Terrace, and Laurelhill Road.

(8) Reconstructing sewer at Dumbarton Road and Royal Gardens.

(9) Clearing and repairing sewer at Lower Bridge Street.

REFUSE DISPOSAL.

Nothing further can be added to my former Reports on the present method of refuse collection and disposal. The daily amount of refuse dealt with is about 17 tons, which is deposited on the tip at Back o' Hill. The refuse is collected by the householders in all sorts of receptacles. We find uncovered pails, basins and boxes, but in very few instances do we come across a covered bin. In fact, it appears that the majority of the householders use what they find handiest. It is anything but sightly to see, on a windy morning, uncovered receptacles standing in the run-channel and the lighter material and paper being blown all over the roadway and footpaths. In too many instances the receptacles have to be placed in the near vicinity to a shop where food is exposed for sale, or again milk, in being drawn from a butt on a milk-cart, can be seriously contaminated with organic or inorganic matter, when the milk is being decanted into the jug held out by the customer, especially when the sale takes place directly opposite an entry to dwelling-houses. It should be clearly understood by householders that the expense incurred in refuse collection and disposal is solely their responsibility, and efforts should and can easily be made by burning all refuse of a combustible nature in the kitchen grate or range and so reduce the quantity of refuse presently dealt with.

ATMOSPHERIC POLLUTION.

In dealing with atmospheric pollution one must bear in mind that our Water Supply is so safeguarded against pollution that the danger to the health of the consumer is remote. Our Food Supply can be selected, and adulteration is safeguarded against. The Air we are compelled to inhale about 15 times every minute of our lives without ceasing is continuously being polluted with gaseous and solid impurities. Great importance, therefore, must be attached to the question of a pure atmosphere. The most dangerous element of pollution which our atmosphere is charged with is sulphuric acid, which is produced in large quantities, the whole of which finds its way into the atmosphere. When coal is burned sulphur is oxidised to sulphurous, and eventually to sulphuric acid. All the acid derived from house coal escapes up our chimneys into the air. The combustion of one ton of coal produces about 68℔s. of strong sulphuric acid, and, taking the annual amount of coal consumed in Stirling at approximately 17,461 tons in domestic fires alone, 531 tons of sulphuric acid is thrown into the air every year. The solution to the problem of a cleaner atmosphere lies in the cheapening of electricity and gas, and the only means whereby that end can be attained is by the introduction of super-stations supplying high-pressure electricity to distributing stations, and the low carbonisation of coal for the production of gas, coke, or smokeless fuel. Concerning the latter, the points which await solution are:—(1) Can this fuel be carbonised in large quantities in an expeditious manner and (2) How would it be distributed and sold to householders in general? Experiments have been carried out by Mr. MacLaurin, the inventor of the plant, with smokeless fuel and ordinary fuel in 15 minutes' observations as to (1) radiant heat (6 feet distant from the fire) and (2) room temperature. In burning smokeless fuel the highest radiant heat was 75·0° Fahr., and the highest room temperature was 58·7° Fahr. In burning ordinary fuel the highest radiant heat was 70·5° Fahr., and the highest room temperature 57·0° Fahr. Further, the fire burning smokeless fuel lasted two hours longer than the fire burning ordinary fuel. The only difficulty found in the burning of smokeless fuel is in the method of setting the fire and replenishing same. Take again the cost in Pence per 16-hour day of heating a room of 4,000 cubic feet with 4 occupants :—

(1) Open coal fire, 22½% radiation, 9·9d.

(2) Open low temperature fuel (smokeless fuel), 22½% radiation, 8·8d.

(3) Open gas fire, 50% radiation, 23·3d.

(4) High temperature electric heater, 70% radiation, 48·7d.

The exhaust gases from motor cars is another phase of atmospheric pollution, and the emission of this gas is a great source of annoyance and danger to the health of pedestrians. A sample of this exhaust gas was taken for analysis in order to find the carbon-monoxide content, with the following result :—

	Per cent
Carbon-Monoxide (CO)	8·2
Carbon Dioxide (CO_2)	9·0
Hydrocarbons	0·3
Oxygen	1·5
Nitrogen	81·0
	100·0

Carbon-monoxide is a very deadly gas, and deaths occur every day throughout the country by the inhalation of this gas in close confined spaces.

Deposited Impurity.—No investigations were carried out during 1925, owing to pressure of work in other directions.

A table from Professor Leonard Hill's book on the weight of deposited impurity per square mile at different stations during the year ending 31st March, 1922, is of some interest. Of the 31 stations, Stirling stands third lowest, which is very satisfactory from our point of view. The table has been arranged by Dr. Owens, M.D., A.M.I.C.E., F.G.S., Superintendent of the Advisory Committee on Atmospheric Pollution :—

	Tons per square mile
Rochdale—Town	697
Rochdale—Manor House	651
Liverpool	560
Newcastle-on-Tyne	546
Manchester—Whitworth Street (1918-19)	480
Kingston-upon-Hull	410
St. Helens	386
Birmingham—Aston	304
London—average of 8 stations	275
Glasgow—average of 9 stations	255
Southport—Hesketh Park	204
Rothamsted	181
Southport—Woodvale Moss	172
Stirling	**168**
Birmingham—South-Western	140
Malvern	69

Suspended Impurity.—The suspended impurity in the atmohspere is recorded by Dr. Owens' Portable Air Filter. The fundamental principle of the apparatus is as follows :—

A measured and standard volume of air is drawn through a small disc of thick filter paper of standard diameter, leaving thereon a permanent record of the quantity of impurity present. This record is in the form of a discoloured disc, the shade of which indicates the amount of impurity present. Twelve tests were carried out during the months of November and December, 1925, with the following results :—

No.	Air taken	Impurity of suspended matter in lbs. per million cubic yards
1.	In Corn Exchange Road	1·08
2.	At top of King Street	0·54
3.	Playground of St. Mary's Roman Catholic School	0·32
4.	Playground at Child Welfare Centre	0·27
5.	Playground of Episcopal School	0·27
6.	Playground of Craigs School	0·26
7.	Playground of Stirling High School	0·24
8.	Playground of Territorial School	0·19
9.	Playground of Allan's School	0·18
10.	In rear of Municipal Buildings	0·18
11.	Playground of St. Ninians School	0·17
12.	In King's Park	Nil.

SPECIAL INSPECTIONS AND REPORT.

Outfall Sewer at Winchelhaugh for New Housing Scheme No. 1, at Drip Road.

At the beginning of this year the Medical Officer of Health and the Sanitary Inspector were requested to furnish copies of reports to the Scottish Board of Health on the proposed construction of an outfall sewer in the River Forth at Raploch Farm from a sanitary point of view. As the matter was of such importance and urgency, Dr. Penman and the Reporter carried out the investigations without any loss of time, as without such a report it tended to hold up the housing scheme, hence the reason of incorporating the joint report in full at this time.

Public Health Department,
Municipal Buildings,
Stirling, 3rd February, 1926.

The Secretary,
Scottish Board of Health,
121A Princes Street,
Edinburgh.

Dear Sir,

We have been directed by the Town Council of the Burgh of Stirling to furnish a conjoined report from a sanitary point of view on the proposed new outfall sewer in the River Forth at the Raploch Farm.

We understand that this sewer will carry the sewage

(1) From the new housing scheme consisting of 38 houses on the Winchelhaugh site.

(2) From the six existing houses in the Drip Road, and

(3) From the old Raploch Burn.

The sewage effluent from four of the existing houses and the Raploch Burn have been discharging into the river for many years. The first-mentioned source is the only additional sewage to be carried by the proposed sewer, and we estimate that approximately 7,000 gallons—dry-weather flow—will represent the sewage effluent from this additional source.

At present we calculate that the dry-weather flow from a domestic source and trade effluents alone from the burgh of Stirling is 1,300,000 gallons of sewage, of which 862,488 gallons, purely from domestic sources, is discharged daily into the river.

The wet-weather flow amounts to approximately 3,838,496 gallons of " weak " sewage in 24 hours.

At various times we are in the habit of estimating the mass effect of this sewage on the purity of the river by chemical examination of the water taken

(1) At Kildean Farm, which is situated at the uppermost limits of the burgh;

(2) At a point below the Government Stores, which is at the lower limit of the burgh.

We recently took samples at these two points and also a sample from the river at Raploch Farm, the site of the proposed new sewer. We found from the analyses of samples 1 and 2 that the mass effect of the sewage of the burgh when mixed with the river has very little effect on the purity of the water. The analyses of samples 1 and 2 are herewith appended :—

	Parts per 100,000	
In Suspension.	Sample No. 1	Sample No. 2
Mineral Matter	2·41	2·50
Organic Matter	0·52	0·60
Total Suspended Matter	2·93	3·10

	Parts per 100,000	
In Solution.	Sample No. 1	Sample No. 2
Mineral Matter	9·53	9·62
Organic Matter	1·40	1·65
Total Solid Matter	10·93	11·27
Nitrates stated as Nitrate of Soda	0·060	0·080
Nitrites	None	None
Free Ammonia	0·132	0·149
Albuminoid Ammonia	0·020	0·026
Total Ammonia	0·152	0·175
Alkalinity as Carbonate of Lime	3·97	4·12
Chlorine	0·71	0·71
Equal to Chloride of Sodium	1·17	1·17
Colour (Hazen Test)	28	35
In Whole Sample.		
Dissolved Oxygen taken up in 5 days	0·152	0·180
Dissolved Oxygen present in water when received	1·111	1·124
Equal to Dissolved Oxygen in cubic centimetres per litre	7·75	7·84

We also procured a sample near to the site of the proposed new outfall sewer, and found the result favourable. The analysis of this sample we also append :—

	Parts per 100,000
In Suspension.	Sample No. 3
Mineral Matter	2·55
Organic Matter	0·57
Total Suspended Matter	3·12
In Solution.	
Mineral Matter	9·64
Organic Matter	1·65
Total Solid Matter	11·29
Nitrates stated as Nitrate of Soda	0·080
Nitrites	None
Free Ammonia	0·138
Albuminoid Ammonia	0·026
Total Ammonia	0·164
Alkalinity as Carbonate of Lime	4·12
Chlorine	0·71
Equal to Chloride of Sodium	1·17
Colour (Hazen Test)	35
In Whole Sample.	
Dissolved Oxygen taken up in 5 days	0·163
Dissolved Oxygen present in water when received	1·133
Equal to Dissolved Oxygen in cubic centimetres per litre	7·90

The mud on the river banks consists of 78·50 per cent of water and 21·50 per cent of solids, the solids being divided into inorganic matter, 16·74 parts, and organic matter, 4·76 parts per 100,000 parts. In all the samples of river water taken, the suspended matter was chiefly of a clayey nature, and therefore mineral.

With regard to Dissolved Oxygen every sample had more than 7 cubic centimetres per litre, and the Dissolved Oxygen absorbed in 5 days ranged from 0·152 to 0·180 part per 100,000, which is considerably below the standard of 0·4 part per 100,000 parts set by the Royal Commission on Sewage Disposal in their eighth report.

We therefore consider that this additional 7,000 gallons of sewage effluent mentioned above will have no appreciable effect, when the discharge of 1,300,000 gallons dry-weather flow has so little effect on the purity of the water.

We further calculated that the dilution of the sewage from the whole burgh, on mixture with the river water, was approximately 207 times.

The site of the outfall sewer is at a point where the river is free from sharp windings. The sewage will discharge below low-water, and the nearest dwelling-house will be 321 yards away.

We therefore consider that no danger to Public Health will arise from the construction of this sewer and the discharge of its effluent into the River Forth.

We are,
Dear Sir,
Your obedient Servants,

ARCHD. PENMAN, Medical Officer of Health.
JOHN FYFE, Sanitary Inspector.

SMOKE TESTING OF DRAINAGE AND INSPECTION OF SANITARY FITTINGS OF NEW PROPERTIES.

During the year the smoke test was applied to the drainage, and the sanitary fittings inspected of the following properties :—

Double Cottage at Livilands Gate of 6 apartments.
Villa at Torbrex of 6 apartments.
Villa at Manse Crescent of 5 apartments.
Double Cottage at Torbrex of 4 apartments.
Girl Guides Hut at Glebe Crescent.
Villa at Drip Road of 4 apartments.
Tenement Property at Barnton Street—House of 4 apartments and shop.
Bungalow at Livilands Gate of 4 apartments.
Sixteen new tenemental houses at Broad Street, each of 2 apartments.

The drainage was found to be well laid and gas-tight. The interception, disconnection, ventilation and inspection was satisfactorily carried out.

Seven certificates were granted to the Burgh Surveyor.

DRAINAGE AND SANITARY IMPROVEMENTS OF EXISTING PROPERTIES.

The smoke test was applied to the following properties :—

18 Snowdon Place
27 Park Terrace.
29 Albert Place.
47 Port Street.
142 Main Street, St. Ninians.
6 Middle Craigs.

The following is a list of the properties in which repairs were carried out :—

3 Melville Terrace.—A new 3½ inch medium-coated cast-iron soil pipe (¼-inch metal) was erected.

47 Port Street.—The drain from the intercepting trap to the 3½-inch cast-iron soil pipe was repaired and three of the water-closets were reset.

142 Main Street, St. Ninians.—The entire fireclay drainage of this property was reconstructed.

2 Upper Craigs.—One Shanks' w.c. abolished and one " Washdown " w.c. erected in lieu thereof, and a 5-inch intercepting trap fixed on line of drain.

48 Cowane Street.—One new extra " Washdown " w.c. fitted up.

6 Middle Craigs.—New fireclay and cast-iron drainage laid down, intercepted and properly ventilated. New 2½-inch cast-iron waste pipe erected, 2 sink wastes and 3 rain-water pipes disconnected.

MINOR NUISANCES REMEDIED.

Choked Traps	143
Choked Drains	92
Defective Plasterwork repaired	43
Choked W.C.s	41
Choked Rain Conductors	38
Accumulations of Manure and Refuse removed	37
Dirty Areas cleansed	32
Defective Woodwork repaired	30
Dirty Houses cleansed	29
Defective Roofing repaired	28
Dirty W.C. Apartments cleansed	25
Defective Flooring repaired	16
Pigstyes limewashed and cleansed	13
Stables limewashed and cleansed	11
Defective Waste-pipes repaired	10
Verminous Houses cleansed	6
Waste and Rain-water Pipes disconnected from soil drain	5
New Wash-house Boilers erected	2
	601

GENERAL INSPECTIONS.

The nature and number of the Inspections carried out during the year were as follows :

Infectious Diseases Inquiries (including Pulmonary Tuberculosis)	109
General Nuisances	2040
Cleansing of Dirty Houses	29
Overcrowding of Dwelling-houses (non-ticketed)	10
Overcrowding of Dwelling-houses (ticketed)	6
Lighting of Common Stairs and Passages	940
Sweeping and Washing of Common Stairs and Passages	151
Whitewashing and Painting of Common Stairs and Passages	1899
Ventilation of Staircases	23
Paving of Areas and Courtyards	7
Smoke Abatement	47
Smoke-Testing Drainage and Sanitary Fittings	19
Improving Drainage and Sanitary Fittings	96
Water Supply (including Chemical and Bacteriological Examinations)	70
Houses Let in Lodgings (separate rooms)	183
Ticketed Houses (Burgh Police (Scotland) Act, 1903, Section 67)	21
Housing (Inspection of District) Regulations, 1910	46
New Buildings and Additions	31
Food and Drugs Acts	197
Margarine Act	107
Food Inspection throughout Shops, etc.	247
Labelling or Marking of Food	27
Ice Cream and Fried Fish Shops	102
Markets and Slaughterhouse	107
Dairies, Cowsheds, and Milkshops	64
Stables	54
Pigstyes	72
Factories and Workshops	117
Bakehouses	33
Schools and other Public Buildings	25
Public Places of Amusement	4
Fertilisers and Feeding Stuffs Act	2
Rag Flock Act	—
Shops and Early Closing Acts	368

Atmospheric Pollution		12
Miscellaneous		404
Laboratory Work.—	Examination for Fat and Solids in Milk	118
	Bacteriological Examination of Milk	—
	Microscopical Examination of Milk	7
	Sedimentation in Milk	2
	Examination of Air for Bacteria and CO_2	50
	Suspended Impurity in the Atmosphere	17
	Total Inspections	7863

WATER CLOSETS AND WATER SUPPLY.

It will be observed at the introduction of this Report that the Scottish Board of Health asked for a statement to be prepared in which detailed information was to be given as to

(1) The number of common water closets in use in the burgh, showing separately the number serving 2, 3, 4, and 5 or more tenants respectively ;

(2) The number of houses without water supply and sink inside the house ;

(3) The number of dry closets, etc.

(1) Water Closets.—At the present time it is imperative that a water closet be fitted up in each separate house, and rightly so. About 10 to 15 years ago it was a general rule that one water closet for 2 tenants was ample and sufficient, and going back still further in the conversion of the conservancy to the water-carriage system in the older properties, one water closet was introduced for the whole property. In property of this type there should not be more than 4 tenants to one water closet, and that only where the occupiers in each house are few in number. The appended table will give the information desired :—

1 Water closet used in common by 2 tenants in 128 properties.
1 „ „ 3 tenants in 70 properties.
1 „ „ 4 tenants in 87 properties.
1 „ „ 5 tenants in 25 properties.
1 „ „ 6 tenants in 30 properties.
1 „ „ 7 tenants in 4 properties.
1 „ „ 8 tenants in 10 properties.
1 „ „ 9 tenants in 1 property.
1 „ „ 10 tenants in 1 property.

(2) Water Supply.—No separate house should be without a sink and water led in. Unfortunately in Stirling we still have, in old property, houses without this most beneficial auxiliary to public health. There are 86 properties where a water supply has not been provided in 480 houses, and the following statement indicates the position in the burgh :—

1 sink used in common by 2 tenants in 16 properties with 75 separate houses.
1 „ „ 3 tenants in 21 properties with 157 „
1 „ „ 4 tenants in 10 properties with 56 „
1 „ „ 5 tenants in 8 properties with 87 „
1 „ „ 6 tenants in 1 property with 6 „
1 „ „ 8 tenants in 1 property with 8 „

In 27 properties, consisting of 89 separate dwellings, the tenants draw the supply of water from outside wells or stand-pipes, and in 2 properties 2 tenants draw their supply of water from the wash-house.

(3) Dry Privies, etc.—There is only one dry privy in the burgh. This is situated at Torbrex.

ULTRA-VIOLET RAYS.

In October, at the request of Dr. Watt of the Scottish Board of Health, the work in investigating the amount of ultra-violet rays that comes directly from the sun and from bright clouds and blue sky was commenced. At the end of 1925, these investigations were also being carried out at the following places :—Hampstead and Kingsway, London ; Peppard, Oxfordshire ; Davos, Switzerland ; Greenwich Observatory ; Frodsham, Liverpool ; Hull and Huddersfield, in Yorkshire ; and Lyme Regis, Dorset. The ultra-violet rays extend beyond the violet end of the spectrum and are of shorter wave length than the violet rays. The ultra-violet rays have great bactericidal and healing powers. The waves have very little penetrative power, and are easily stopped by atmospheric impurities from reaching us. It stands to reason that the smokier the town or city the less rays can pierce through from the upper atmosphere. It is, therefore, essential for the health of the people that smoke should be abolished as far as it is possible to do so, and so provide for one of the greatest natural health-agents known. The ordinary glass in windows cuts off the ultra-violet rays, and it would be a decided advantage in the home to substitute a window glass that is transparent to the rays. The method in carrying out this research is described in " Health and Environment," by Professor Leonard Hill and Argyll Campbell, M.D., D.Sc.

A quartz tube of standard width containing a standard solution of acetone and methylene blue is so placed that the exposure to sun and sky shine is uninterrupted. It must be noted that the ultra-violet rays come both from the sun directly and from bright clouds and blue sky.

At the end of 24 hours, or earlier if the day is a clear sunny one, the tube is replaced by another, and the amount of bleaching of the blue solution determined by comparing it with a set of standard tubes of varying degrees of blueness, and numbered 10 to 3. The standard acetone blue is at the start equal in depth to No. 10 ; if, say, it is bleached down to the tint of No. 4, the measurement is 6 on the scale. Supposing two or more tubes are exposed on a sunny day, the readings of each are taken together to give the total for the 24 hours. Each degree of the scale is equivalent in value and represents twice to four as much ultra-violet radiation as suffices to produce a slight erythema or flushing of the average sort of white skin. The standard then is a biological one.

Ultra-violet rays can be artificially produced by the Mercury Vapour Lamp and the Carbon Tungsten Arc Lamp. The Mercury Vapour Lamp has 12 times the sun's strength in ultra-violet rays or about 5 times that of the sun and blue sky together. Experiments were carried out by the Reporter on the Mercury Vapour Lamp recently installed at the Child Welfare Centre, Sauchie House, when it was found that the fading of the acetone and methylene blue in the quartz tube at the lamp was equal to a bleaching power of 6 in 7 minutes, while 15 inches away from the lamp the bleaching power was 6 in 12 minutes.

Appended is a table showing the daily readings of our observations during October, November and December, of the fading in the quartz tube and also the sunshine recorded at the High School.

ULTRA-VIOLET LIGHT, Recorded at Climatological Station, Sauchie House
Baker Street, Stirling. (151 feet above Mean Sea Level.)

Date	Quartz Tube set 4 ft. above ground level (over grass)								
	Degree of fading of Acetone Methylene Blue			Hours of Bright Sunshine			Percentage of Possible		
	Oct.	Nov.	Dec.	Oct.	Nov.	Dec.	Oct.	Nov.	Dec.
1st	1·5	0·5	0·75	1·0	2·2	3·1	9·5	26·7	38·9
2nd	0·5	0·75	1·5	0·2	0·4	5·8	1·9	4·9	72·7
3rd	3·0	0·5	1·5	4·8	0·0	4·5	46·0	0·0	57·8
4th	2·5	2·5	0·5	3·3	5·3	0·0	31·7	64·3	0·0
5th	3·0	1·0	0·0	3·6	0·0	0·0	34·6	0·0	0·0
6th	2·5	0·5	0·0	4·0	0·8	0·0	38·5	9·7	0·0
7th	1·0	1·0	0·0	0·0	0·9	0·0	0·0	10·9	0·0
8th	3·5	2·5	0·0	6·9	7·5	0·0	66·3	91·0	0·0
9th	4·0	2·0	0·0	9·5	6·5	0·0	91·3	79·0	0·0
10th	3·5	1·5	0·0	7·2	5·5	0·0	69·2	66·7	0·0
11th	2·0	1·0	1·5	4·7	3·6	4·1	45·2	43·7	58·7
12th	0·5	1·0	1·0	0·4	0·0	3·5	3·8	0·0	50·2
13th	2·5	0·75	1·0	2·2	0·0	3·6	21·2	0·0	51·6
14th	3·0	0·5	1·0	2·6	0·0	3·5	25·0	0·0	50·2
15th	1·0	0·0	0·5	0·0	0·0	0·0	0·0	0·0	0·0
16th	3·0	0·0	0·0	7·9	0·0	0·0	76·0	0·0	0·0
17th	3·5	0·5	0·0	7·9	1·2	0·0	76·0	14·5	0·0
18th	2·0	0·5	0·0	5·6	1·4	0·0	53·8	15·8	0·0
19th	1·0	0·25	0·5	2·4	0·0	1·2	23·0	0·0	17·2
20th	0·5	0·5	0·5	0·0	0·0	0·0	0·0	0·0	0·0
21st	0·5	0·5	0·5	0·2	2·0	0·0	1·9	24·3	0·0
22nd	0·5	0·75	0·5	0·0	5·4	0·0	0·0	65·5	0·0
23rd	1·0	1·5	0·0	1·9	6·4	0·0	18·3	77·7	0·0
24th	2·5	0·0	1·0	4·6	0·0	4·1	44·2	0·0	58·7
25th	2·0	1·0	0·5	6·2	4·3	0·0	59·6	52·2	0·0
26th	1·0	0·5	0·0	0·0	1·1	0·0	0·0	13·4	0·0
27th	1·5	1·0	0·0	2·1	5·0	0·0	20·2	60·7	0·0
28th	2·0	1·0	0·0	3·4	4·6	0·0	32·7	55·9	0·0
29th	1·0	0·5	0·0	3·5	0·0	0·0	33·7	0·0	0·0
30th	0·5	1·0	0·5	0·0	0·8	0·0	0·0	9·7	0·0
31st	1·5		1·0	0·1		1·7	0·9		24·4
Averages	**1.9**	**0.85**	**0.46**	**3.1**	**2.2**	**1.1**	**29.9**	**26.2**	**15.5**

VENTILATION OF SCHOOLS.

About the end of the year the question of the ventilation of the schools was brought prominently to my notice, and I determined at an early date that the ventilation in all classrooms of the schools in the burgh be tested by means of the Kata Thermometer. The instrument has been devised by Professor Leonard Hill, and he states that "the evaporative power of the atmosphere has a far-reaching effect, not only in the comfort of the skin, but on the respiratory mechanism. The ceaseless variations in the rate of cooling, evaporation, absorption of radiant energy, as in outdoor conditions, relieves us from monotony, stimulates tone and metabolism." In pressing this point of view, he urges that the whole question of ventilation depends not upon the presence of carbon-dioxide, but on movement of air of suitable temperature and humidity. The instrument he has designed measures briefly and approximately the rate of heat loss of the body under varying conditions. It is a large bulb spirit thermometer with a safety bulb at the top. In use, the bulb is dipped into hot water until the alcohol rises into the safety bulb, and then the instrument is dried and suspended in the air to be tested. The time taken to fall from 100° to 95° Fahr. (2½° above and below normal body temperature) is measured with a stop watch. The instrument is then used wet, *i.e.*, with a silk mesh finger-stall placed over the bulb, the excess water shaken off, and the readings taken. Several readings (three or four) should be registered with each and the average worked out.

The dry bulb gives the cooling power by radiation and convection, the wet by radiation, convection and evaporation. To find this, each instrument possesses a factor (which has been evolved under specific conditions), and into this factor is divided the number of seconds which has been found by the experiment in question. This gives the cooling power in milli-calories per square centimetre per second, and the standards which Hill lays down as absolute minima are :—

For dry kata the reading should not be less than 6.
For wet kata the reading should not be less than 18.

Preferably in schools, the dry reading should be over 7 and the wet over 20, because children, having a greater metabolism per unit of body surface than adults, need an atmosphere with not less, but a greater cooling power.

I commenced operations at the Territorial School, and herewith append a table showing the result that classrooms No. 1, 2, and 6 were each below the reading for the dry and wet kata, while all the rest of the classrooms, especially Nos. 4 and 9 classrooms, conform to the standard.

TERRITORIAL SCHOOL.

Kata Thermometer Tests in the Various Classrooms.

No. of Room	No. of children present	Area of Room	Cubic capacity of Room	Lighting and Ventilation	Humidity			Dry Kata	Wet Kata	Remarks
					DryBulb °Fahr.	WetBulb °Fahr.	Per Cent.			
1	47	588 sq. feet	8130 cubic feet	4 windows (open at top), 2 Tobin tubes, 1 outlet.	63°	55°	59	6·1	16·1 Fair	Children counting.
2	46	506 sq. feet	6998 cubic feet	4 windows (2 open at top), 2 Sherringham valves, 2 Tobin tubes, 1 outlet.	64°	57°	65	6·9	17·4 Fair	Children writing.
3	55	467 sq. feet	6890 cubic feet	5 windows (2 open at top), 1 Sherringham valve, 1 outlet.	54°	49°	69	9·1	19·5 Good	Children distributing pens and exercise books. Much movement in room.
4	51	633 sq. feet	9341 cubic feet	5 windows (3 open at top), 2 Sherringham valves, 1 outlet.	51°	47°	73	9·1	20·4 Very good	Children reading.
5	51	673 sq. feet	9924 cubic feet	6 windows (3 open at top), 2 Sherringham valves, 1 outlet.	54°	49°	69	10·2	21·9 Very good	Children reading. Rather draughty.
6	47	604 sq. feet	8553 cubic feet	4 windows (slightly open), 2 Sherringham valves, 4 outlets.	58°	50°	56	6·4	16·1 Fair	Children doing silent reading.
7	39	440 sq. feet	6238 cubic feet	3 windows (slightly open), 1 Sherringham valve, 1 Tobin tube, 3 outlets.	56°	50°	65	8·0	19·1 Good	Children writing.
8	38	483 sq. feet	6772 cubic feet	4 windows (slightly open), 2 Tobin tubes, 3 outlets.	58°	52°	66	7·3	18·0 Fairly good	Children reading and writing. Seats all on same level.
9	27	625 sq. feet	8750 cubic feet	4 windows (all open), 2 Tobin tubes, 4 outlets.	56°	51°	68	8·2	21·4 Very good	Children reading and writing. Continual movement in classroom.
10	60	617 sq. feet	8732 cubic feet	4 windows (2 slightly open), 4 Sherringham valves, 1 outlet.	56°	50°	65	7·1	18·0 Fairly good	Children writing.
11	17	600 sq. feet	8403 cubic feet	4 windows (3 slightly open), 2 Sherringham valves, 1 outlet.	52°	46°	68	8·8	19·6 Good	Children having an arithmetic lesson.
12	19	551 sq. feet	7713 cubic feet	3 windows (all open), 2 Sherringham valves, 1 outlet.	51°	46°	69	8·5	19·5 Good	Children having an arithmetic lesson.
13	20	551 sq. feet	7713 cubic feet	3 windows (all open), 2 Sherringham valves, 1 outlet.	56°	48°	56	7·0	18·5 Fairly good	Children doing Algebra and Geometrical drawing.

Carbon-dioxide tests were also conducted in classrooms No. 1, 2, 6 and 9, and, as will be seen in the accompanying table, the results indicate that in the first three classrooms the respiratory impurity was higher than that in No. 9 classroom.

ESTIMATION OF CARBON-DIOXIDE (CO_2) IN 4 CLASSROOMS.

Dato	Time	No. of Class-room	Pupils Present	Dry Bulb ° Fahr.	Wet Bulb ° Fahr.	Humidity per cent:	Barometric Pressure in inches	CO_2 per 10,000 volumes of air	Respiratory Impurity of CO per 10,000 volumes of air	Suggested Standard of CO_2 per 10,000 volumes of air
19/2/26	2.45 p.m.	1	47	55	49	65	29·59	16·2	12·5	10
19/2/26	2.50 p.m.	2	47	57	52	71	29·59	14·9	11·2	
19/2/26	2.55 p.m.	6	45	56	51	70	29·59	19·2	15·5	
19/2/26	3 p.m.	9	46	54	47	59	29·59	11·2	7·5	

Bacteriological Examination of the air in the same classrooms gave the following results :—

No. 1 Classroom—117 organisms in one cubic metre of air.
No. 2 Classroom—159 „ „ „ „ „
No. 6 Classroom— 85 „ „ „ „ „
No. 9 Classroom—332 „ „ „ „ „

The larger amount in Classroom No. 9 may be accounted for by the continual movement of the scholars in the classroom at the time. Too much importance must not be attached to the organisms present, because you have got to differentiate between common moulds and bacteria. The number present in the air varies according to the time of day and seasons of the year. The ventilation of the Territorial School is on the natural system, and shows by the results of the various tests that it is very satisfactory. Examinations of a similar nature are being carried out in all the other schools.

Public Library.—Seven tests were carried out by means of the Kata Thermometer during December in the reading-room of the Stirling Public Library. The room is lit by electricity, and is heated on the low-pressure system. The results obtained are tabulated herewith, and are very satisfactory :—

No.	Time	No. of persons in reading-room	Humidity			**Dry Kata**	**Wet Kata**
			Dry Bulb °Fahr.	Wet Bulb °Fahr.	Per cent.		
1	2.35 p.m.	14	50·9	44·3	57	7·1	16·7
2	2.40 p.m.	18	50·6	44·5	59	7·5	17·3
3	2.50 p.m.	19	50·6	44·5	60	7·5	17·3
4	3.5 p.m.	24	51·8	45·6	60	7·4	16·7
5	3.10 p.m.	28	52·2	46·0	60	8·2	16·7
6	3.20 p.m.	34	52·8	46·4	59	7·9	16·1
7	3.30 p.m.	38	52·9	46·8	61	8·3	18·8

INCREASE OF RENT (RESTRICTIONS) ACTS.

Three applications were made by occupiers for certificates regarding the condition of their houses in respect to repairs and habitability. Two certificates were granted, and in the case of the other house the repairs were carried out without a certificate being granted.

HOUSING.

Forty-six houses were inspected in terms of the Housing (Inspection of District) Regulations, 1910, and 7 were considered to be in a state so dangerous or injurious to health as to be unfit for human habitation. The defects were remedied in 4 of the houses, but no representations were made to the Local Authority with a view to Closing Orders on the other 3 meantime.

During the past year 12 houses have been built by private individuals, and partly occupied, and 6 existing houses have been sub-divided, making altogether 13 separate houses ; while 2, two-apartment houses at Borestone Brae have been converted into one house of four apartments, making altogether 19 additional dwellings.

Since my last Report the properties built by the Town Council in Broad Street, and consisting of 16, two-apartment houses, have been occupied, and the 8, two-apartment houses in Lower Castlehill will be occupied at an early date, making a total number of 43 dwelling-houses; but from this has to be deducted 33 houses which were demolished in Broad Street, Allan Park, and the conversion of the 2 houses at Borestone Brae into one, thus leaving a net increase of 10 houses compared with my last returns.

I herewith submit a tabular statement of the general Housing Conditions over the whole Burgh Area up to 28th May, 1926 :—

Condition of Houses	Number of Apartments				
	One	Two	Three	Four and Over	Total
(1) Houses fit for Human Habitation	52	1357	1061	1782	4252
(2) Houses that can be made fit for Human Habitation	98	231	42	10	381
(3) Houses that can **not** be made fit for Human Habitation	296	78	23	0	397
Totals	... 446	1666	1126	1792	5030

Number of New Houses required to replace (3) 397
Also, say 50% of one-apartment houses (1 and 2) 75

Total number of New Houses required to replace existing houses and to raise the general housing standard ... 472

The housing scheme No. 1 at Bannockburn Road is making rapid progress, and in a very short time 66 houses will be ready for occupancy. Two houses are being erected in the Drip Road for the accommodation of 2 workers on the Raploch Farm, and the building of the three houses at Kildean Toll has commenced. The contracts for the 38 houses on the Drip Road No. 1 Site have been fixed, and the work of building will be proceeded with immediately. The Town Council have decided to acquire ground for the extension of the Bannockburn Road Housing Scheme to provide 80 additional houses. Lay-out plans have to be submitted by the Burgh Engineer for the erection of 62 additional houses on the Drip Road Site, and 24 houses of the tenement type are to be erected in Burnside Street.

As Inspector in the examination and testing of drainage and sanitary fittings in new buildings, records have been kept of the number of dwelling-houses erected in the burgh, and I herewith detail the number erected each year since 1904 :—

Year	No. of dwelling-houses erected
1904	89
1905	106
1906	95
1907	54
1908	45
1909	95
1910	23
1911	17
1912	22
1913	15
1914	8
1915	22 (6 by Town Council at Port Street)

Year	No. of Dwelling-houses erected
1916	7
1917	nil
1918	nil
1919	nil
1920	nil
1921	1
1922	nil
1923	140 (erected by Town Council at Shiphaugh)
1924	4
1925	36 (24 by Town Council at Broad Street and Lower Castlehill.)

It may be further noted that the population has only increased to the extent of 2,407 from 1904 to 1925, but I am informed by the Town Chamberlain that he has a waiting-list of nearly 750 applicants for houses.

REPORT for the Year ended 31st December, 1925, on proceedings taken as regards the Inspection, Improvement, and Closure of Dwelling-houses.

A.—Housing (Inspection of District) Regulations, 1910.

1. Number of dwelling-houses inspected	46
2. Number of dwelling-houses which on inspection were considered to be in a state so dangerous or injurious to health as to be unfit for human habitation	7
3. Number of representations made to the Local Authority with a view to the making of closing orders	0
4. Number of dwelling-houses in respect of which closing orders made	0
5. Number of dwelling-houses, the defects in which were remedied without either the making of closing orders or the service of notices under Section (3) 1 of the Housing, (Scotland) Act, 1925)	4
6. Number of dwelling-houses which after the making of closing orders were put into a fit state for human habitation	0

B.—Housing (Scotland) Act, 1925.

1. Number of dwelling-houses in respect of which notices were served under Section 3 (1)	0
2. Number of dwelling-houses rendered fit for human habitation under Section 3 (1)	0
3. Number of dwelling-houses in respect of which closing orders were deemed to have become operative under Section 3 (1)	0
4. Number of dwelling-houses rendered fit for human habitation by the Local Authority under Section 3 (2)	0

LODGING-HOUSES.

There are 8 recognised lodging-houses within the burgh. The total number of lodgers allowed by licence is 193. All the houses, with the exception of one, are situated in the Broad Street District. The bye-laws were adhered to in all cases. The number of inspections to lodging-houses during the year was 183.

I would take this opportunity of again advocating the erection of a model lodging-house by the Town Council. Some years ago a Committee was formed from the Town Council to carry out the scheme, but for some reason the matter was dropped.

INSPECTION OF FACTORIES, WORKSHOPS AND WORKPLACES.

There are 34 factories, 144 workshops and 49 workplaces, including 24 restaurant kitchens, on the register, exclusive of bakehouses. The following table gives some indication of the work carried out during the year :—

Premises.	Number of	
	Inspections	Written Notices
Factories (including Factory Laundries) ...	41	4
Workshops (including Workshop Laundries)	66	8
Workplaces (other than Outworkers' premises)	10	1
Totals	117	13

DEFECTS FOUND IN FACTORIES, WORKSHOPS AND WORKPLACES.

Particulars		Number of Defects		
		Found	Remedied	Referred to H.M. Inspector
Nuisances under the Public Health Acts :—				
Want of Cleanliness...		3	3	...
Want of Ventilation		...	...	...
Overcrowding		...	...	...
Want of Drainage of Floors		...	...	...
Other Nuisances		11	11	...
Sanitary Accommodation	Insufficient	...	...	...
	Unsuitable or Defective ...	1	1	...
	Not separate for Sexes	...	...	...
Offences under the Factory and Workshop Acts :—				
Illegal occupation of Underground Bakehouse		...	...	...
Other Offences		1	1	...
Totals		16	16	...

During the year 4 notices of occupation and 4 notices in terms of section 5 of the Act were received from H.M. Inspector of Factories, and attended to. The total number of visits under the Factory and Workshop Act was 117.

BAKEHOUSES.

There are 10 factory and 3 workshop bakehouses within the burgh. During the year the Reporter accompanied the Medical Officer of Health in 33 visits of inspection. Four notices of complaints were received from H.M. Inspector of Factories with regard to general cleanliness of floors and limewashing, these being all attended to. One factory bakehouse was entirely renovated. Much improvement yet requires to be carried out in places where food is prepared for human consumption, especially in bakehouses.

MARKETS AND SLAUGHTERHOUSE.

There are 3 live-stock markets within the burgh, these being owned and conducted by Limited Companies. These were regularly inspected, and only in one instance was it found necessary to issue an intimation in terms of Section 19 of the Public Health (Scotland) Act, 1897. The nuisance was immediately remedied. The markets are all well constructed, and are kept in a clean and sanitary condition.

The Slaughterhouse continues to be well conducted and the inspection of carcases very thoroughly carried out.

UNSOUND FOOD.

In connection with section 43 of the Public Health (Scotland) Act, 1897, 247 visits regarding the inspection and destruction of unsound meat, etc., were made during the year. In the course of these visits 3 seizures were made.

Article	Where seized	Quantities or Weights	Reasons for Seizures
Beef	Butcher's Shop	16 lbs	Unsound condition
Cod Roe	Fish Shop	14 lbs	Decomposed
Potatoes	Potato Merchant's Yard	10 tons 13 cwts	Local rot, subsequent on bruises

LABORATORY WORK.

The expense saved by the Local Authority in carrying out the various examinations in our Laboratory for the year 1925, is estimated at £128 17s. 6d. The following particulars show the nature and results of these examinations :—

Examination of Milk for Fat.

One hundred and eighteen samples of sweet milk were examined for fat during the year. Three of the samples were taken "In Course of Delivery" at Stirling Railway Station, 18 procured from dairies, milkshops, and milk-carts, one sample handed into the office, 37 samples obtained from the Child Welfare Centre, 17 represented the milk delivered to persons tendering milk-tickets, 2 from the Stirling Combination Poorhouse and the remaining 40 were the separate milkings of a herd of 20 animals (evening and morning milkings) owned by a dairy farmer within the burgh.

One hundred and six of the samples, or 90%, were genuine, and 12, or 10%, were non-genuine.

The average per cent. of milk-fat was 3·6.

The following table shows the fat in the milk of each of the animals referred to above. I append it here, as it may prove of some general interest, and help to explain some of the vagaries in the quality of milk.

No. of Cow	Breed of Cow	Percentage of Milk-Fat	
		Evening's Milk	Morning's Milk
1	Ayrshire	4·2	3·2
2	Cross	5·1	3·2
3	Ayrshire	4·1	3·6
4	Cross	4·5	2·6
5	Cross	4·5	3·3
6	Cross	3·6	3·0
7	Cross	3·5	4·0
8	Cross	4·5	2·4
9	Cross	3·2	3·4
10	Ayrshire	5·2	2·9
11	Cross	3·3	2·3
12	Cross	4·2	3·1
13	Cross	4·4	3·0
14	Ayrshire	4·3	2·4
15	Ayrshire	4·1	3·6
16	Cross	3·3	2·7
17	Ayrshire	3·9	3·2
18	Cross	3·8	3·0
19	Cross	4·1	2·9
20	Ayrshire	3·4	3·4
	Average per cent. of milk-fat	4·11	3·06

Sediment or Dirt in Milk.

Two samples of milk were taken " In Course of Delivery " at Stirling Railway Station, and were examined by Orr's method :—

No. 1 Sample—6 parts of sediment per 100,000 parts.
No. 2 Sample—4 parts of sediment per 100,000 parts.

Microscopical Examination of Milk.

Seven samples of sweet milk were examined microscopically in the Laboratory, 6 being taken by the Veterinary Surgeon (Mr. George Inglis, M.R.C.V.S.) under the Milk and Dairies (Scotland) Act, 1914; the remaining milk was handed to my assistant by one of the dairy farmers retailing milk in the burgh.

The first 6 milks were found to be very clean, and free from any streptococci or staphylococci. No Acid-Fast Bacilli were present. The seventh sample was drawn from a cow which had newly calved, and on examination was found to contain a large number of colostrum corpuscles, but no Acid-Fast Bacilli.

Chemical Examination of Air.

Seventeen samples of air were collected and tested in our Laboratory by Pettenkofer's method, with the following results :—

No.	Situation	Barometric Pressure in inches	Temperature °Fahr.	Relative Humidity Per Cent.	CO_2 per 10,000 volumes of air	Respiratory Impurity of CO_2 per 10,000 volumes of air
1	Kinema Picture House	29·71	60·5	76	15·8	11·80
2	Kinema Picture House	29·71	60·5	76	14·6	10·60
3	Classroom 6, Allan's School	29·90	59·0	64	9·78	6·13
4	Classroom 15, Allan's School	29·90	60·0	60	7·60	3·95
5	Outside Air	29·90	38·0	74	3·65	......
6	Outside Air	29·87	34·8	84	3·75	......
7	Reading Room, Public Library	29·87	51·0	58	6·78	3·03
8	Reading Room, Public Library	29·87	51·0	58	6·82	3·07
9	Byre at Raploch Dairy Farm	30·00	38·1	66	10·58	7·28
10	Outside Air	29·87	45·0	78	3·72	......
11	Reading Room, Public Library	29·87	53·0	69	12·60	8·60
12	Byre at Laurencecroft Dairy Farm	30·00	45·3	80	7·79	4·29
13	No. 1 Byre at Craigforth Dairy Farm	30·00	45·0	84	12·00	8·50
14	No. 2 Byre at Craigforth Dairy Farm	30·00	44·2	87	11·30	7·80
15	Byre at King's Park Dairy Farm	30·00	43·9	78	7·58	4·28
16	Overcrowded dwelling-house of one apartment	29·53	48·3	72	7·20	3·70
17	Overcrowded dwelling-house of two small apartments	29·53	41·2	70	10·60	7·10

Recent research in ventilation by the Kata Thermometer emphasises the importance of temperature, relative humidity and air motion as the important features, and minimise the harmful effects of increased carbon-dioxide content.

Bacteriological Examination of Air.

The method employed to enumerate the organisms present in the air was to expose agar (neutral red) plates for definite periods in the confined places to be examined. Organisms, or the particles of dust carrying them, fell on the plates, and from the number of colonies which developed, a rough idea of the richness of the air in organisms was obtained. Petri states that in five minutes the bacteria present in 10 litres of air are deposited on 100 square centimetres of an agar (neutral red) plate.

The following tabular statement shows the results obtained :—

No.	Situation	No. of organisms present in one Cubic Foot of air	No. of organisms present in one Cubic Metre of air
1	Byre at Laurencecroft Dairy Farm	863	30,464
2	No. 1 Byre at Raploch Dairy Farm	1147	40,489
3	No. 2 Byre at Raploch Dairy Farm	486	17,156
4	No. 1 Byre at Craigforth Dairy Farm	786	27,110
5	No. 2 Byre at Craigforth Dairy Farm	600	21,180
6	Byre at King's Park Dairy Farm	523	18,462
7	Reading-Room, Public Library, Morning ...	8	282
8	Reading-Room, Public Library, Evening ...	9	318
9	Overcrowded dwelling-house of one apartment ...	144	5,083
10	Overcrowded dwelling-house of two small apartments	173	6,107

I may add that the excessively high count in No. 2 is due to the fact that the floor of this cowshed was swept immediately prior to the exposure of the plate.

(See remark on moulds and bacteria under " Ventilation of Schools.")

FERTILIZERS AND FEEDING STUFFS.

Two samples of feeding stuffs for milk cows were obtained from a local dairy farmer, and submitted to our Agricultural Analysts (Messrs. R. R. Tatlock & Thomson, Glasgow), who reported the analyses to be as follows :—

Sample No. 1 —Bean Meal. Food Units—121.

	Per cent.
Albuminoids	28·43
Carbohydrates	45·69
Oil	1·58
Vegetable Fibre	5·85
*Mineral Matter	2·70
Water	15·75
	100·00
*Contains Sand	0·04

Sample No. 2—Feeding Cake. Food Units—138.

	Per cent.
Albuminoids	31·94
Carbohydrates	35·63
Oil	8·88
Vegetable Fibre	7·20
*Mineral Matter	6·24
Water	10·11
	100·00
*Contains Sand	0·95

To produce milk of good quality, dairy cows should be fed on the best of feedingstuff, with a high percentage of albuminoids and fat. In Brewer's draff and turnips the Food Units are 35 and 8 respectively.

DAIRIES, COWSHEDS, AND MILKSHOPS.

At the end of 1924, there were 30 persons registered in the burgh to purvey milk, 7 dairy farmers and 23 purveyors of milk, and the number of milk cows housed in the 7 byres was 117. At the beginning of September, 1925, there were 5 dairy farmers with 102 cows, and 25 purveyors of milk.

Along with the Veterinary Surgeon, 64 visits of inspection were made throughout the year. The Veterinary Surgeon examined all the dairy cows, and samples of milk were drawn from suspicious animals and submitted for microscopical examination. The byres are well kept, and the cows well groomed.

MILK AND DAIRIES (SCOTLAND) ACT.

This Act, which came into force on the 1st September, 1925, along with the accompanying Orders, will have a far-reaching influence in effecting a safer and cleaner milk supply in methods of production, handling, storage, conveyance, and distribution. No additional financial outlay need be incurred by the dairy farmer in the reconstruction of premises, unless absolutely necessary for the proper carrying on of the business ; but he is required to have a healthy milk-producing herd, well housed, well fed and well groomed, with clean milkers and utensils.

Dairy Bye-laws, in terms of section 8, for the burgh have been drawn up and confirmed by the Scottish Board of Health on the 26th of March, 1926. The principal points in the Bye-laws are as follows :—

(a) Inspection of cattle in dairies.

(b) Structure, lighting, ventilation, cleansing, drainage, washing and scalding facilities, and water supplies of dairies and their appurtenants.

(c) Prevention of impurities in milk intended for human consumption, and securing the cleanliness and health of the cows, and the cleanliness of the persons and clothing of those engaged or assisting in the business, and of milk, cows, dairies, sculleries, boiler-houses, and of utensils, vehicles, and vessels used for the reception, conveyance, storage, or sale of milk.

(d) Precautions to be taken by dairymen against infection or contamination.

The Reporter was appointed by the Town Council for the purpose of inspecting dairies under the Act. The necessary advertisement was inserted in the press circulating in the burgh, and each dairy farmer and milk purveyor received a copy of The Milk and Dairies (Scotland) Act, 1914, Commencement Order, 1925 ; The Milk and Dairies (Scotland) Order, 1925 ; and Notes for the guidance of dairymen in the symptoms of the more common infectious diseases transmissible by milk, the same being drawn up by our Medical Officer of Health, and lastly, a copy of the Dairy Bye-laws.

In terms of section 7, certificates of registration have been granted to 5 dairy farmers and 16 purveyors of milk. Two purveyors have given up the sale of milk, while 7 certificates of registration have been held back, pending further consideration.

Fifteen milk carts and one milk barrow belonging to dairymen in the burgh, and 7 milk carts belonging to dairymen outwith the burgh, were also registered.

Owing to a considerable amount of milk coming by rail to Stirling Station, I thought it advisable, in the interests of all concerned, that this part of the railway station, where the milk is decanted, be registered, and this has been done.

The following table will show the main provisions of the 5 byres within the burgh.

Standards for Cubic Space, Lighting Areas, Ventilating Areas, and other Measurements.

Dairy Farmers	Number of cows that can be housed.	Number of cows presently housed.	Cubic feet per cow	Lighting Area in square feet per cow	Ventilating Area in square inches per cow	Floor Space in square feet per cow	Double-headed Byres width of passage and grips	Single-headed Byres width of passage and grips	Height of wall head from floor	Height in calculating cubic feet per cow
			400	2	30	40	7′0″	5′6″	8′0″	..
1. John Gilvear, Laurencecroft Dairy Farm	20	20	468·0	10·2	55·6	47	8′ 9″	...	10′ 0″	10′ 0″
2. (a) Alex. M'Kerracher, Raploch Farm	14	11	581·2	1·3	27·7	54	...	8′ 6″	9′ 5″	9′ 5″
(b) Alex. M'Kerracher, Raploch Farm	14	12	497·1	2·2	27·7	41	...	8′ 6″	9′ 5″	12′ 0″
3. (a) Charles Smith, Craigforth Dairy Farm	10	9	393·6	1·0	46·7	38	8′ 2″	...	8′ 0″	10′ 6″
(b) Charles Smith, Craigforth Dairy Farm	10	9	394·7	1·6	46·7	38	8′ 8″	...	8′ 0″	10′ 6″
4. John W. Dewar, King's Park Farm	42	34	368·3	1·2	130·8	36	6′ 3″	...	8′ 6″	10′ 6″
5. Messrs. Christie Bros., Coxithill Farm	27	7	411·0	0·5	42·2	60	8′ 7″	5′ 7″	6′ 0″	9′ 0″
Totals	137	102								

The cubic space per cow is calculated on the number of stalls in the byre or the cows that may be housed, and not on the actual number in the byre.

John Gilvear, Laurencecroft Dairy Farm.

The byre is in good condition.

Alexander M'Kerracher, Raploch Farm.

No. 1 Byre.—The lighting area is deficient to the extent of 0·7 square foot, and in tilating area 2·3 square inches.

No. 2 Byre.—The ventilating area is deficient to the extent of 2·3 square inches.

Charles Smith, Craigforth Dairy Farm.

No. 1 Byre.—The lighting area is deficient to the extent of 1 square foot.

No. 2 Byre.—The lighting area is deficient to the extent of 0·4 square foot.

The cubic capacity in No. 1 byre is deficient to the extent of 6·4 cubic feet, and in No. 2 byre to the extent of 5·3 cubic feet.

John W. Dewar, King's Park Farm.

The cubic capacity is deficient to the extent of 31·7 cubic feet, but the ventilating area is abundant. The lighting area is deficient to the extent of 0·8 square foot.

Messrs. Christie Brothers, Coxithill Farm.

The lighting area is deficient to the extent of 1·5 square feet.

THE MILK (SPECIAL DESIGNATIONS) ORDER (SCOTLAND).

At the end of 1925, one producer and two dealers' licences were applied for, for the sale of Certified Milk, and on the 20th January and 25th February, 1926, the licences were granted. This matter will be fully reported upon at a later date.

For general information there is herewith subjoined the following conditions, which are laid down before a licence can be granted for the sale of Certified Milk, or, in other words, Milk of First Quality :—

For Producers only.

(1) (a) The producer shall cause every animal of the herd to be examined not less than three times in every year, and the Veterinary Surgeon's certificate shall be furnished to the Local Authority within seven days after the date of the certificate ;

(b) The producer shall cause the prescribed tuberculin test to be applied to every animal of the herd at intervals of six months, and the certificate of the tuberculin test shall be furnished to the Local Authority within seven days after the date of the certificate. The producer shall not permit any animal of the herd to be injected with tuberculin on any other occasion, provided that after two such tests where on each occasion no reactor has been found, and where no animal has been introduced into the herd other than an animal taken directly from a herd in respect of which a licence for the sale of Certified or Grade A. (tuberculin tested) milk is in operation (in this part of this Schedule referred to as a "licensed herd") subsequent tests shall be required only at intervals of twelve months;

(c) No animal, other than an animal taken directly from a licensed herd, shall be added to the herd unless it has passed, immediately before it is so added, the prescribed tuberculin test;

(d) Where any animal is certified as reacting to the prescribed tuberculin test it shall forthwith be removed from the herd, and where any animal is certified as showing evidence of any disease which is likely to affect injuriously the quality of the milk, it shall be isolated or removed from the herd, as the case may require. The milk from an animal so isolated shall not be sold as milk from the herd. Where the animal is removed from the herd on account of any such disease the producer shall inform the Local Authority how it has been disposed of;

(e) The herd shall be completely isolated from all other cattle;

(f) A suitable system shall be adopted for the marking, for purposes of identification, of the animals in the herd, and a complete register of such animals shall be kept.

(2) Immediately after production the milk shall be cooled and bottled on the premises, the bottles having previously been sterilised by steam.

(3) Immediately after being bottled the milk in the bottle shall be covered with a suitable tightly-fitting disc, and the bottle shall be covered with a suitable outer cap overlapping the lip of the bottle, and so fastened as to form a complete seal. The cap shall bear the name and address of the producer or of the premises where the milk is produced, the day of production, and the words "Certified Milk." The words "produced from cows which have passed the tuberculin test" may be added, but, except with the consent of the Local Authority, the cap shall bear no other words.

The following conditions apply to all holders of licences :—

(1) The milk shall not be removed from the bottles or the seals broken before delivery to the consumer;

(2) On a sample being taken at any time before delivery to the consumer, the milk shall be found to contain (a) not more than 30,000 bacteria per cubic centimetre, (b) no coliform bacillus in one-tenth of a cubic centimetre, and (c) not less than 3·5 per cent. of butter fat;

(3) The milk shall not at any stage be treated by heat.

FOOD AND DRUGS ACTS.

Eighty-seven formal samples and 13 informal samples of food and drugs were forwarded to our Public Analysts. Of the total 92 were reported as "genuine," while 8 were reported as "non-genuine."

The following tables show the nature of the samples taken :—

Formal Samples.

Nature of Sample	No. taken	Genuine	Non-Genuine
Sweet Milk	46	43	3
Margarine	10	10	...
Butter	5	5	...
Coffee	5	5	...
Cream of Tartar	4	4	...
Condensed Milk	2	2	...
Rice	3	3	...
Cinnamon	2	2	...
White Pepper	2	2	...
Baking Powder	2	2	...
Cocoa	1	1	...
Lard	1	1	...
Ginger	1	1	...
Vinegar	1	1	...
Flour	1	1	...
Baking Soda	1	1	...
Totals	87	84	3

Sweet Milk.—The analysis of the three " non-genuine " showed that :—

No. 1 was deficient in milk-solids other than milk-fat to the extent of 2% ; taken " in course of delivery " ; letter of warning sent.

No. 2 deficient in milk-solids to the extent of 2% ; warned in office.

No. 3 deficient in milk-solids to the extent of 2% ; warned in office.

Informal Samples.

Nature of Sample	No. taken	Genuine	Non-Genuine
Sweet Milk	6	3	3
Whisky	4	3	1
Lard	2	1	1
Ideal (Condensed) Milk	1	1	...
Totals	13	8	5

The five " non-genuine " samples were reported upon as follows :—

Sweet Milk :—

No. 1 deficient in milk-fat to the extent of 1%.

No. 2 deficient in milk-fat to the extent of 10%.

No. 3 deficient in milk-solids other than milk-fat to the extent of 2%.

The sample of Lard was " non-genuine," in respect that it contained 30% of Cotton Seed Oil. This lard was used by a bakery firm to grease the pans used in the manufacture of cakes,. I communicated with the firm, and requested them not to use this lard for any process in baking whatever.

The sample of whisky was "non-genuine," in respect that it was 45·2 degrees under proof.

Considerable differences of opinion were held by licence-holders regarding the marking or labelling of barrels or bottles which contain whisky of a lesser strength than the statutory strength of 35 degrees under proof, or with a greater dilution of water.

I communicated with the Secretary of the Stirling and District Licensed Trade Defence

Association, and after some deliberation he issued a circular letter to all the licencees in the burgh, which, *inter alia*, requested that cards or labels should be worded in the following manner :—

> **" Sale of Food and Drugs Acts."**
>
> *The spirits in this* ${}^{\textit{Bottle}}_{\textit{Vessel}}$ *are admixed with water, and the strength reduced to between* 40 *degrees under proof to* 45 *degrees under proof.*

The figures 40 and 45 are taken as sample figures, but whatever figures are inserted in the notice or label, it should be kept in view they must be limited to a range of not more than 5 degrees.

Variations in Fats and Solids-not-Fat in Milk at different seasons of the year.

Formal Samples—May to September.

Year	Number of Samples for Milk-Fat	Number of Samples for Solids-not-Fat	Average Percentage of Milk-Fat	Average Percentage of Solids-not-Fat
1920	9	9	3·52	8·88
1921	11	11	3·37	8·96
1922	17	17	3·48	8·83
1923	2	2	3·68	8·84
1924	6	6	3·62	8·59
1925	19	19	3·46	8·70

October to April.

1920	25	25	4·24	8·84
1921	23	23	3·72	8·84
1922	21	21	3·54	8·53
1923	12	12	3·33	8·82
1924	20	20	3·43	8·72
1925	27	27	3·60	8·83

Informal Samples—May to September.

Year	Number of Samples for Milk Fat	Number of Samples for Solids-not-Fat	Average Percentage of Milk-Fat	Average Percentage of Solids-not-Fat
1920	3	3	2·38	8·32
1921	14	9	3·33	9·12
1922	15	9	3·31	9·25
1923	28	27	3·53	9·35
1924	33	7	·69	8·73
1925	31	......	3·57	......

October to April.

1920	16	13	2·81	9.31
1921	13	7	3·49	9·27
1922	10	6	3·90	9·11
1923	27	12	3·40	9·17
1924	58	2	3·63	8·54
1925	93	6	3·57	8·61

THE PUBLIC HEALTH (DRIED MILK) REGULATIONS (SCOTLAND).

Owing to the lack of public demand for this article most shopkeepers have ceased to stock dried milk.

THE PUBLIC HEALTH (CONDENSED MILK) REGULATIONS (SCOTLAND).

Three samples of Condensed Milk were procured for analysis, and were submitted to our Public Analysts, and the following results were received :—

	Per Cent.
No. 1 Sample—Ideal Milk.	
Milk-Fat	9·67
Solids-not-Fat	23·13
Total Milk Solids	32·80
No. 2 Sample—Full Cream (Sweetened).	
Milk-Fat	9·58
Solids-not-Fat	23·05
Total Milk Solids	32·63
No. 3 Sample—Full Cream (Unsweetened).	
Milk Fat	9·16
Solids-not-Fat	22·49
Total Milk Solids	31·65

All 3 samples were free from preservatives. Condensed Milk must contain not less than 9·0 per cent of Milk-Fat, and a minimum of 31·0 per cent for the total Milk-Solids.

BACTERIOLOGICAL EXAMINATION OF MILK.

Five samples of sweet milk were obtained and submitted to a bacteriological examination by our Bacteriologist, who reported upon the samples as follows :—

	Total Organisms in 1 cubic centimetre	Coliform Organisms (B. Coli)			
		0·1 cc or 1/10th cc	0·01 cc or 1/100th cc	0·001 cc or 1/1000th cc	0·0001 cc or 1/10,000th cc
Sample No. 1	400,000	Present	Present	Present	Present
Sample No. 2	320,000	Present	Present	Present	Absent
Sample No. 3	400,000	Present	Present	Present	Absent
Sample No. 4	264,000	Present	Present	Present	Absent
Sample No. 5	30,000	Absent	Absent	Absent	Absent

Sample No. 1 was obtained from a motor van. Nos. 2 and 3 were taken "In Course of Delivery," and Samples Nos. 4 and 5 were milks supplied to the Child Welfare Centre.

Sample No. 1 contains at least 10,000 Coliform organisms in each cubic centimetre of milk.

Samples Nos. 2, 3, and 4 contain at least 1000 Coliform organisms in each cubic centimetre of milk.

Sample No. 5 is the superior milk by far.

SEDIMENTATION IN MILK.

Forty-nine samples of sweet milk were forwarded to our Public Analysts in order to ascertain the amount of sediment or dirt present in each sample.

Sixteen of the samples were obtained on the premises of dairy farmers within the burgh shortly after the process of milking was completed, 7 as sold from carts, 4 procured in shops (3 of which were samples of bottled milk), and the remaining 22 were taken "In Course of Delivery" (13 at Stirling Railway Station, 4 at Child Welfare Centre and 5 in milk shops).

Of the total 49 samples, 27 samples were lower than the suggested standard of 3 parts of sediment or dirt per 100,000 parts of milk.

The results of the remaining 22 samples are as follows :—

Sample No. 1	From Milk-Cart	4·5	parts per 100,000 parts.
„ „ 2	Bottled Milk	3·0	„ „
„ „ 5	From Dairy Farm	3·6	„ „
„ „ 7	„	3·6	„ „
„ „ 11	„	3·6	„ „
„ „ 12	„	3·0	„ „
„ „ 14	„	3·0	„ „
„ „ 18	„	3·0	„ „
„ „ 23	"In Course of Delivery" at Stirling Railway Station	9·6	„ „
„ „ 24	„ „	3·8	„ „
„ „ 27	"In Course of Delivery" in Milkshop	3·8	„ „
„ „ 30	"In Course of Delivery" at Stirling Railway Station	3·0	„ „
„ „ 34	„ „	5·6	„ „
„ „ 35	„ „	4·3	„ „
„ „ 36	„ „	6·9	„ „
„ „ 38	From Milk Cart	3·2	„ „
„ „ 39	„	3·5	„ „
„ „ 41	"In Course of Delivery" at Stirling Railway Station	5·1	„ „
„ „ 44	"In Course of Delivery" at Child Welfare Centre	4·1	„ „
„ „ 46	"In Course of Delivery" at Stirling Railway Station	3·4	„ „
„ „ 47	„ „	6·5	„ „
„ „ 48	„ „	3·6	„ „

A letter of warning was sent to all vendors who retailed milk which contained more than 3·0 parts of sediment or dirt per 100,000 parts.

The following is a copy of the letter which was sent to the Vendor of Sample No. 23:—

Dear Sir,

Sale of Food and Drugs Acts, 1879-1899.

A sample of sweet milk was taken by me "In Course of Delivery" at Stirling Railway Station on 7th of May, the vendor's sample being forwarded to you by registered post on the same date. On analysis the sweet milk was found to be genuine, and contained 3·52% of milk-fat and 9·01% of solids-not-fat. In my opinion the milk is of excellent quality. The matter which I wish to draw your attention to, however, is the excessive amount of sediment or dirt, namely, 9·6 parts by volume per 100,000 parts. This goes to show that there is something very far wrong in the process of milking, either the condition of the animals, the byre, or the milkers. Milk, though genuine from a chemical standpoint, should be retailed in a clean condition. In England prosecutions have been successfully instituted against farmers who have been supplying milk with 3 parts of sediment or dirt per 100,000 parts of milk. I would, therefore, request you, as producer, to see that in future you supply milk with a great deal less sediment or dirt in it, and you are no doubt aware that milk can be produced—everything being in order—so as to prevent this excessive amount of sediment or dirt, namely, 9·6 parts.

Samples will again be taken in the course of a day or two, and I trust that the milk will be found to be a great deal cleaner. If not, I will certainly take proceedings against you.

(Signed) John Fyfe.

A further sample was taken from the producer of Sample No. 23, and, on examination, it was found that a great improvement in the amount of sediment had been made.

PRESERVATIVES IN FOOD.

During the year under survey a sample of Sausage, Sponge Cake and Glucose were purchased, and submitted for analysis in order to ascertain the amount and nature of any preservatives present.

During the course of inspection in a confectionery work the Reporter came across 4 barrels of glucose, hence the reason for the informal sample being taken.

The following are the results of the analyses : –

Sample No. 1—Sausage.—Contained 2·38 grains of Sulphurous Acid (SO2) per lb.

Sample No. 2—Sponge Cake.—Free from preservatives.

Sample No. 3—Glucose.—Contained 1/300th of a grain of Arsenic and 1·79 grains of Sulphurous Acid per lb.

In August, 1925, Regulations as to the amount and nature of preservatives in articles of food were made by the Scottish Board of Health.

These Regulations come into operation on the first day of January, 1927, provided that

(1) The Regulations shall come into operation on the first day of January, 1928, so far as they relate to butter and cream ; and

(2) So far as the Regulations prohibit the sale of an article of food containing any preservative which is necessarily introduced by the use in its preparation of preserved bacon, ham, margarine, or butter, they shall come into operation on the first day of July, 1927, in the case of bacon, ham, and margarine, and the first day of July, 1928, in the case of butter.

It is gratifying to note that boric acid is not to be allowed in any food stuffs. The only preservatives which are permitted are Sulphur Dioxide as sulphurous acid, and Benzoic acid.

ICE CREAM.

A circular letter in the following terms was issued to all manufacturers of this commodity :—

Dear Sir, Ice Cream.

The manufacture and sale of ice-cream might well be subject to more stringent supervision. Ice-cream, if properly manufactured from good material and under hygienic conditions, comes under the category of good food, and can be produced rich in fat and with a low bacterial count. Some of the local ice-cream dealers have loyally co-operated with the Public Health Department in supplying to the public ice-cream of first-class quality, and I propose to grant certificates for ice-cream which contains at least 3 per cent. of milk-fat, and is free from any deleterious substance. Samples will be taken by me in the course of a few days from all the ice-cream dealers in the town, and the samples will be submitted for analysis by our Public Analysts, Messrs. Tatlock & Thomson, Glasgow.

(Signed) John Fyfe.

Eighteen samples of ice-cream were procured for analysis, and I am sorry to report that only 5 certificates were granted, the remaining 13 samples being all under the 3 per cent of milk-fat. In this country there is no standard for ice-cream.

SAMPLES OF ICE CREAM TAKEN FOR ANALYSIS FOR MILK-FAT, ETC., AND PRESERVATIVES.

Sample No.	Milk-Fat	Milk-Solids	Sugar and Starch	Water	Preservatives	Certificate granted to Vendors whose samples were found to contain more than 3% of Milk-Fat
1	9·01	7·15	20·44	63·40	None	Certificate granted
2	2·81	8·10	20·24	68·85	None	
3	2·60	7·74	21·66	68·00	None	
4	2·43	7·42	20·10	70·05	None	
5	2·69	7·86	18·23	71·22	None	
6	21·58	5·31	17·12	55·99	None	Certificate granted
7	2·87	7·88	19·22	70·03	None	
8	2·04	8·05	18·04	71·87	None	
9	2·47	7·70	19·90	69·93	None	
10	3·05	8·52	16·16	72·27	None	Certificate granted
11	2·71	7·64	13·77	75·88	None	
12	2·63	7·58	17·62	72·17	None	
13	2·98	8·20	16·74	72·08	None	
14	2·50	7·43	18·71	71·36	None	
15	2·36	7·20	16·14	74·30	None	
16	3·27	8·51	10·30	77·92	None	Certificate granted
17	2·61	7·93	18·16	71·30	None	
18	3·05	8·43	21·20	67·32	None	Certificate granted

The analyses of the above samples of ice-cream were carried out by our Public Analysts.

The following is a copy of the Certificate that was issued :—

ROYAL BURGH OF STIRLING.

I hereby certify that the Ice Cream sold at this Establishment, occupied by ……………………………………………………………………………………

at…………………………………………………………………………………… Stirling, has been found, on analysis, to contain the requisite standard of Fat in Milk, and to be free from any deleterious substance.

The above occupier is a Registered Dealer in Ice Cream within the district of the Local Authority of the Burgh of Stirling.

Sanitary Department,
Municipal Buildings,
Stirling,…………………………19……

Inspector under the Sale of Food and Drugs Acts.

Note.—This Certificate to is be preserved by the holder, and will be withdrawn in the event of any sample taken not meeting the requirements of the Local Authority.

FRIED FISH AND CHIP SHOPS.

There are 14 Fried Fish and Chip Shops within the burgh, and visits of inspection were made to these regularly. The following were the main points to which attention was directed on these visits :—

(1) Condition of front shop—walls, ceiling, floor, and fittings.
(2) Condition of back shop.
(3) Ventilation.
(4) Water Supply—condition of sink, etc.
(5) W.C. accommodation.
(6) Examination of Fat.
(7) Examination of Fish.
(8) Examination of Potatoes.
(9) How the food is wrapped when retailed.
(10) Cleanliness of shop assistants.

Most of these premises have had Fish Ranges installed, and the odours coming from the shops have been greatly dininished.

MARGARINE ACT.

Ten samples of margarine were purchased for analyses (included in Food and Drugs Table) and found genuine. Visits of inspection were paid from time to time to premises on which margarine was exposed for sale, in order to detect any contravention of the Act. Particular attention was given to the smaller class of shops, and in a few cases verbal warnings were given to the vendors, who mostly pled ignorance of that section of the Act.

THE SALE OF FOOD ORDER.

As will be seen from the table of General Inspections, numerous visits in respect to the proper marking of all imported eggs retailed in shops in the burgh were made. I found that this duty was well observed.

HAWKING OF FRUIT.

In Stirling there are 13 retail fruiterers and one wholesale merchant, whose premises are all in first-class condition, and the storage of fruit is very satisfactory.

There are also 12 hawkers of fruit, and their stores are visited regularly and inspected.

OBSERVATIONS ON FOOD CONTROL AND THE SANITARY CONDITION OF PREMISES, WHERE FOOD IS MANUFACTURED, PREPARED, STORED, OR EXPOSED FOR SALE.

Stirling is a residential town and the shopping centre for a considerable area round about. The shops have grown in importance in recent years. Shop premises, where food is manufactured, prepared, stored or sold, are well conducted, but from a hygienic point of view there is a considerable amount of carelessness and uncleanness in relation to the handling and exposure of food stuffs in general, and herein lies the need of a real and urgent reform in public health administration.

Regulations governing (1) personal cleanliness, etc. ; (2) transport of food, etc. ; (3) general sanitary condition of premises ; (4) butcher shops ; (5) baker shops ; (6) fish shops ; (7) grocer shops ; (8) fruit and vegetable shops ; (9) hotel and restaurant kitchens, are very necessary, and, in my opinion, have been too long delayed.

In this Report it is impossible to go over all the conditions that the proposed Regulations should cover, but I would suggest a few improvements in general that occur to me at this time.

(1) Personal cleanliness, etc.—Every person engaged in the manufacture, preparation, production, handling, packing and storage of any food for sale should keep and maintain his clothing, hands, finger nails and body clean.

No person should smoke or chew tobacco while engaged in the manufacture, preparation, packing, handling, storage, carriage, or delivery of any food for sale.

No person who is suffering from any contagious or infectious disease, or who has recently been in contact with any person suffering from any contagious or infectious disease, or who is wearing unclean bandages, should engage in the production, manufacture, preparation, handling, packing or storage of any food for sale, or handle, whether for cleaning or any other purpose, any utensil or thing used in the manufacture, preparation, packing, storage, or serving of any food for sale.

(2) Transport of Food, etc.—No person should carry for sale or delivery on any part of the exterior of any vehicle any article of food not usually contained in sealed packages, unless it is so protected as to prevent such article of food from becoming contaminated by dust, flies, or other means.

Every person engaged in the carriage or delivery for sale of any food, should keep clean all vehicles and receptacles used in the carriage of such food stuffs, especially vehicles used in the conveyance of carcases from the slaughterhouse to butcher shops.

Any person delivering food for sale should not employ any person to assist him unless the assistant is cleanly in his person, clothing and habits, and is free from infectious disease, skin affection, or any other condition or disability, which might render possible the contamination of food, and no person who has recently been in contact with any case of infectious disease, or who resides at any house in which infectious disease exists, should be employed by any tradesman as an assistant in the work of delivering food of any kind for sale.

General Sanitary Condition of Premises.—The construction of all premises where food is sold should be such that proper lighting and ventilation is acquired, and that adequate sanitary accommodation is provided. Provision should also be made for personal cleanliness by the erection of cloakrooms and washhand basins with soap and clean towels for the use of the persons engaged in handling food. Clean washable overalls should be worn by all assistants. All openings to the external air should be protected as far as practicable against dust and flies by means of screens of wire gauze of approved mesh. Provision should be made for cold storage accommodation in every shop where food of a perishable nature is sold. All premises where food is stored should be absolutely vermin proof.

Butcher Shops.—The butcher shops in the burgh are as a rule well kept, but the back premises are found to be at times in a very untidy condition. Bins with close fitting covers should be provided for the reception of scraps and waste, the same to be kept clean and covered when not in actual use. The mincing and sausage machines do not receive the attention that is desired, and in some instances the sausage machines are found to be defective and in a dirty condition. Much improvement might be effected in the condition of the cold storage accommodation in some of the shops. In transporting or carrying carcases, or portions of carcases of meat, into any shop, assistants should be provided with a shield of clean material to prevent any meat so carried from coming into contact with their person or clothing. It is much to be regretted that Parts 5 and 6 of the Public Health (Meat) Regulations, 1924, for England, were not incorporated in the Meat Regulations for Scotland. This, in my opinion, was a serious omission.

Baker Shops.—Under the Factory and Workshop Act, 1901, powers are given to Local Authorities for the inspection of bakehouses, but there is still much to be desired in the sanitary condition of some of the bakehouses, the principal defects being the lack of general cleanliness on the part of the baker, the promiscuous handling of the bread and cakes manufactured, and also in the transit of such articles to the shop premises. Therefore, before we can ask for any protection against contamination of the articles in the shop, stronger measures should be taken to promote a more general state of cleanliness in the bakehouse itself. The wrapping of bread should be considered.

Fish Shops.—The fish shops are well conducted, except that some of the back premises are badly ventilated. There is a lack of properly drained and ventilated ice boxes. All fish boxes should be thoroughly cleansed after the fish have been removed, and no unclean basket or box should be used for containing or carrying fish for sale. Regulations should be made to govern the trade of the street hawker in regard to the cleanliness of his person, vehicle, boxes and the means of controlling the condition of storage. The wrapping of fish, firstly, in newspaper is to be condemned.

Fruit and Vegetable Shops.—All fruit and vegetables intended for sale should be kept at least 9 inches above the floor, so that there is a clear space between the floor and the under side of the staging or support upon which the goods are kept, and no fruit or vegetables should be exposed outside the premises unless it is protected from contamination by dust, dirt, or flies. No person should use for the purposes of wiping or polishing any fruit any rag or cloth other than a proper duster kept solely for the purpose. No person should display any food for sale in any shop window unless such window space is protected against dust, flies, or vermin, and the window space to be kept clean, and the food contents tidily arranged and properly kept in a sound sanitary condition. Vegetables should not be stacked on the pavement at the entrance of shops. Street traders of fruit and vegetables should be registered, and their storage places should be licensed annually subject to the premises being satisfactory.

Grocer Shops.—Much improvement is required in the back premises of grocer shops. The protection of food stuffs from dust at shop doors should be made imperative; in fact, the protection from dust and flies by suitable coverings of all groceries exposed for sale is desirable. The practice of some shopkeepers blowing into bags should be prohibited.

Hotel and Restaurant Kitchens.—All such premises should be well lighted and ventilated, and at all times kept in a clean condition. All food should be kept in properly constructed and fly-proof safes, and a sufficient number of impervious receptacles with close fitting covers for the reception of food scraps and trade waste should be provided. Power should be given to see that all pots, pans, kettles, and other utensils used in or about the kitchen are kept in a cleanly and sanitary condition. All drinking vessels, plates, spoons, forks and knives used in common should be thoroughly cleansed with boiling water immediately after use. Table linen to be scrupulously clean.

Ice Cream and Fried Fish shops are dealt with in another section of this Report.

Greater powers are now given to Local Authorities by means of the bye-laws framed under the Milk and Dairies (Scotland) Act, 1914, in connection with the clean production and handling of milk.

In the course of my usual food inspection visits, I am invariably accompanied by the Veterinary Surgeon round the butcher shops, whose assistance and help I greatly appreciate, and I may add that a great improvement has been effected in this class of business.

STABLES AND PIGSTYES.

The stables within the burgh, of which there are 25, are visited periodically. Altogether 11 notices were issued to owners regarding the limewashing and general cleanliness. The points to which our attention is specially directed are, namely :—Construction of floors and walls, cubic space, ventilation, drainage, water supply and condition of cleanliness. The number of horses in the burgh is steadily decreasing.

There are 16 pigstyes within the burgh. The number of pigs kept is approximately 130. Thirteen first and 7 second notices were served on owners to have pigstyes limewashed. In some cases verbal intimations were found to have the desired effect.

OFFENSIVE TRADES.

The premises of the one Tallow Melter and one Tripe and Gut Cleaner at the Slaughterhouse were visited periodically during the year. The premises are always well kept, and the businesses properly conducted.

RATS AND MICE (DESTRUCTION) ACT.

During the year 131 circular letters with a leaflet were issued to the owners of markets, stables, cowsheds, piggeries, and to shopkeepers retailing foodstuffs, requesting them to give us their co-operation and do their utmost in destroying the rodents.

FLY NUISANCE.

Circular letters to the number of 139 were issued during the year to all the owners of stables, pigstyes, byres, dairies, and to all shopkeepers where food is stored and sold, requesting their co-operation in the removal and destruction of all matter which would encourage the breeding of flies. A circular letter was sent to all owners of butcher shops in the burgh in the following terms:—

> Dear Sir,
>
> At this season of the year—and especially during the warm spell of weather we have had of late—the fly nuisance is always with us. I would therefore most respectfully solicit your kind co-operation in the keeping of your premises as free from flies as far as it is possible to do so.
>
> The back premises of the shop, as you are well aware, ought to be thoroughly and continually flushed with fresh air, and as the windows have to be kept open to get this result, I would suggest that fly-proof netting or gauze should be fixed round all openings.
>
> Before this alteration could be carried out it might be advisable to use some palliative, and I would suggest spraying as the method to be adopted.
>
> I had the opportunity recently of testing by means of a small hand spray and a chemical mixture of a proprietary nature for the destruction of flies, and it proved to be most efficacious.
>
> There is nothing more displeasing to the eye, not to mention the danger to health that may accrue, than fly-infected premises containing foodstuffs, especially where butcher meat is exposed for sale.
>
> Your attention to this circular letter will greatly oblige.
>
> (Signed) JOHN FYFE.

The same precautionary measures apply to all shops where food is exposed for sale.

LIGHTING OF COMMON STAIRS AND PASSAGES.

During the year 940 visits of inspection were paid to properties regarding the lighting of common stairs and passages. Eight first notices, 9 final notices and 20 letters were issued to owners and factors, and on 22 separate occasions verbal warnings were given to tenants for omitting to light the fitting with which they had been provided. The number of properties having no lighting facilities, and which were dealt with during the year, was 27. Great difficulty is experienced in persuading tenants in some of the properties to agree as to whether gas or oil lamps should be used.

CALORIFIC VALUE, PRESSURE AND PURITY OF STIRLING GAS AS SUPPLIED BY THE STIRLING GAS-LIGHT COMPANY.

As Gas Examiner for the burgh, calorific tests for heating values, pressure and purity tests were carried out in the Laboratory at the Gas Works on 28 different dates during 1925. The highest calorific value was 522·8 British Thermal Unites (gross) per cubic foot, the lowest 470·1, and the average of the 28 tests 488·0 British Thermal Units (gross) per cubic foot of gas consumed. The highest pressure was 5·0 inches, the lowest 4·2 and the average 4·6 inches. No trace of sulphuretted hydrogen was detected in the gas during any of the testings. In terms of the Gas Regulation Act, 1920, and in particular the Stirling Gas (Charges) Order, 1921, the Gas Company agreed to supply gas of a minimum calorific value of 475 British Thermal Units (gross) per cubic foot, and provide for a minimum of 2 inches of water pressure on the 18 inch main at the Gas Works.

PUBLIC PARKS AND OPEN SPACES FOR RECREATION.

Public parks and open spaces are provided by the Town Council for recreation in tennis, putting, football and cricket, and children's playgrounds, the supervision and upkeep of which are under the control of the Parks Committee. The acreage of each in round figures are as follows:—

King's Park—tennis, putting, football and cricket, ... (of which 48 acres are within the Burgh).	156 acres.
Gowanhill, ...	34 acres.
Back Walk, ...	26 acres.
King's Knot and the Haining, ...	17 acres.
Linden Avenue—with swings, ...	3 acres.
Shiphaugh—with swings, ...	3 acres.
Borestone Crescent—with swings	2 acres.
Craigs School—with swings	0·6 acre.
Spittalmyre—with swings, ...	0·4 acre.
Union Street—with swings, ...	0·2 acre.
Randolph Road, ...	3 acres.
Queen Street, ...	0·1 acre.

SMOKE ABATEMENT.

The annoyance and the evil from factory smoke cannot be satisfactorily dealt with until the enactments at present in force are strengthened or amended.

There is one factory chimney within the burgh, and 2 outwith the burgh, which cause great trouble and annoyance in the excessive emission of black smoke.

During the year the number of smoke abatement observations made by the department was 47.

SHOPS ACT.

The number of visits made to shops in connection with the half-holiday, meal hours, etc., was 368. On the whole the Act is well observed. In my opinion, section 4 of the Act should be amended in so far as it relates to the shop being kept open on a half-holiday previous to or after a public holiday.

SHOPS (EARLY CLOSING) ACTS.

Numerous visits were made to shops in order to detect any contraventions. Complaints were received regarding the Boot and Shoe retailers in the town, who unknowingly were selling after hours. The following is a copy of the letter issued to the 12 Boot and Shoe retailers within the Burgh :—

> Dear Sir, It has come to my knowledge that some of the Managers of Boot and Shoe Retailers are not too particular in the hours of Closing. On 17th November, 1919, a Closing Order affecting Boot and Shoe Retailers was put into force, and the Order distinctly states that all shops shall be closed for the serving of customers on Mondays, Tuesdays, Wednesdays, Thursdays and Fridays at 7 p.m., and on Saturdays at 8 p.m.
>
> I have had so many complaints of late regarding contraventions of this Order that it will be my duty to deal firmly with anyone who contravenes said Closing Order.
>
> (Signed) JOHN FYFE.

RAG FLOCK ACT.

As some of the provisions of this Act require, in my opinion, to be entirely recast, no action was taken during the year.

BURGH POLICE (SCOTLAND) ACT.

(a) Whitewashing and Painting of Common Stairs and Passages.

In terms of the Burgh Police (Scotland) Act, 1892, section 117, the following table will show the number of inspections and notices issued during the year :—

DISTRICT	First Inspection		Second Inspection		Final Inspection	
	No. of Passages and Staircases Inspected	No. of First Notices Issued	No. of Passages and Staircases Inspected	No. of Second Notices issued	No. of Passages and Staircases Inspected	No. of Final Notices Issued
No. 1 or Broad Street District	561	45	45	30	30	8
No. 2 or Cowane Street District	742	37	37	23	23	6
No. 3 or Port Street District	423	23	23	15	15	2
Totals	1726	105	105	68	68	16

The total inspections made were 1899, and the total number of notices issued was 189.

(b) Sweeping and Washing of Common Stairs and Passages.

Visits of inspection to the number of 151 were made to properties regarding the sweeping and washing of common stairs and passages. On 87 occasions written notices had to be issued—the other 44 cases being complied with after verbal warnings had been given.

(c) Cleansing Areas.—Thirty-five visits were paid to areas attached to tenemental properties, and 33 notices and circulars were served on tenants. The circular is in the following terms :—

> BURGH POLICE (SCOTLAND) ACT, 1892.—IMPORTANT NOTICE.
>
> NOTICE IS HEREBY GIVEN TO YOU, as a Tenant or Occupier, That in terms of Sections 115 and 120 of the above recited Act, all BACK COURTS, WATER CLOSETS, CLOSES, STAIRS, and PASSAGES must be kept Clean by the Tenants or Occupiers of Premises, to the satisfaction of the Sanitary Inspector, and you are, along with the other Tenants or Occupiers, hereby required to keep all such places in connection with your occupancy thoroughly clean, under a penalty of Ten Shillings in case of non-compliance.
>
> Any failure to keep the Back Court and other places regularly and effectually clean will lead to a prosecution.

(d) Cleansing of Dirty Houses.—The total number of visits made to dirty houses was 29. Twenty-two notices were served on occupiers with the desired effect. It was found necessary, however, to serve 7 final notices.

A reminder in the form of a circular was issued to a considerable number of tenants during the year, and I have no doubt that it tended to promote a better state of cleanliness in the dwelling. The circular is appended :—

> REMEMBER THIS, PLEASE.
>
> Put all house, stair, and passage sweepings, also potato peelings, vegetable refuse, and fish bones, etc., on the back of the fire ; this will prevent bad smells and disease. Never throw any sweepings into the street.
>
> Open your windows every day to let in fresh air and to air your bed clothing. If this is not done, bad air is breathed over and over again, and this may cause pulmonary tuberculosis.
>
> Never pour slops into the sink, as this may lead to sore throats and diphtheria. Pour slops down the water-closet, and keep the closet in all its parts clean.
>
> Be particular about the cleanliness of yourself and your children, and much ill-health will be prevented.

(e) Overcrowding.—Sixteen cases of overcrowding were dealt with throughout the year. Six of these cases occurred in dwelling-houses (ticketed), the other 10 cases occurring in dwelling-houses (non-ticketed).

Owing to the lack of housing accommodation, overcrowding in some parts of the town has been rather prevalent of late. Some of the worst cases are herewith appended :—

No. 1.—Small two-apartment house with 9 adults and 6 children, overcrowded by 6 adults and 5 children.

No. 2.—Small one-apartment house with 6 adults and 5 children, overcrowded by 3 adults and 4 children.

No. 3.—Small two-apartment house with 8 adults and 5 children, overcrowded by 4 adults and 3 children.

No. 4.—Small three-apartment house with 6 adults and 4 children, overcrowded by 3 adults and 1 child.

KILDEAN COMBINATION HOSPITAL.

The sewage from the Combination Hospital at Kildean is treated on the bacterial method before being discharged into the river Forth. The sewage passes into a septic tank, then by gravitation flows on to two contact beds. The sewage is carried over the beds in cement channels and distributed over the clinker by capillary wires. Samples of the effluent were taken before and after filtration, and forwarded to our Public Analysts for analyses, and their report is very satisfactory.

"No. 1.—Sewage Effluent from Septic Tank (before filtration), at Combination Hospital Kildean, Stirling."

"No. 2.—Sewage Effluent from Combination Hospital, Kildean (after filtration)."

	Parts per 100,000 No. 1.	Parts per 100,000 No. 2.
In Suspension.		
Mineral Matter	3·81	1·10
Organic Matter	4·33	1·36
Total Suspended Matter ...	8·14	2·46
In Solution.		
Mineral Matter	26·20	23·14
Organic Matter	3·08	2·35
Total Solid Matter	29·28	25·49
Nitrates as Nitrate of Soda ...	none	·08
Nitrates	trace	trace
In Solution.		
Free Ammonia	1·25	0·91
Albuminoid Ammonia	0·11	0·08
Total Ammonia	1·36	0·99
Alkalinity as Carbonate of Lime ...	11·75	10·82
Colour (Hazen Test)	75	28
In Whole Sample.		
Dissolved Oxygen taken up in 5 days	6·05	1·32

No. 1.—This is a rather weak septic tank liquor, as shown by the proportions of suspended matter and Free and Albuminoid Ammonia, as well as the Dissolved Oxygen taken up in five days. It is usual for nitrification to take place to some extent, but the absence of Nitrates shows that this has not been the case.

No. 2.—This effluent would be considered as quite satisfactory, the proportions of Suspended Matter and of Dissolved Oxygen taken up in five days being lower than the limits (3 parts of the former and 2 parts of the latter) recommended as a general standard by the Royal Commission on Sewage Disposal. A comparison of the various data will show the great improvement effected by filtration.

(Signed) R. R. Tatlock & Thomson.

CONTROL OF ORDINARY INFECTIOUS DISEASES.

This phase of our work is dealt with fully by the Medical Officer of Health in his Report.

During the year 72 intimations to Headmasters of schools, and 12 intimations to the Librarian of the Public Library were issued.

Ninety-one apartments, with bedding, etc., were disinfected after patients were removed to Hospital, or, if treated at home, after they had been certified by the Medical Practitioner as free from infection.

Where clothing is disinfected in the homes it is thoroughly sprayed with a 20% Formaldehyde solution. Formaldehyde "Vap-Lamps" are then employed for aerial disinfection (number according to cubic space). The apartment is kept sealed for 4 hours. Carbolic fluid of an 18·5 Co-efficient and Carbolic soap of 4% Carbolic Acid are given out for washing purposes. Any books belonging to a Public Library are taken away and disinfected before being sent back to the Librarian, the books being aerially disinfected in a patent air-tight Disinfecting Cabinet.

CONTROL OF TUBERCULOSIS.

During the year 14 houses were thoroughly disinfected after deaths from Pulmonary Tuberculosis, or after patients suffering from the disease were removed to a Sanatorium or other residence.

Fourteen sets of bedding and body clothing were removed to the Infectious Diseases Hospital, Kildean, and, as requested, were disinfected by steam or destroyed by fire.

The method of disinfection is as follows :—When a patient is removed by death, to another residence, or admitted to an institution, the apartment is visited, and any bed or body clothing for disinfection by steam or destruction by fire is removed to the Kildean Hospital in a special van. The apartment is sprayed with a 20% Formaldehyde solution through a " Formalin " spray, while aerial disinfection is carried out by means of Formaldehyde lamps, the apartment being sealed for 4 hours. After the disinfection, the proprietor or factor of the house is requested to strip and re-paper the apartment, or whitewash same according to the wall surface. 18·5 Carbolic Fluid Co-efficient and 4% Carbolic Soap is provided, with which the floors and furniture (especially the bedstead) are thoroughly washed. In Public Institutions the " Lingners " Disinfecting Apparatus is used.

BURIAL GROUNDS.

There are 4 burial grounds within the Burgh, known as the Mar Place and Valley, Ballengeich, Snowdon and St. Ninians Cemeteries.

The grounds are under the charge and control of the Superintendent (Mr. Thomas Lees), and are all kept in excellent condition.

INTERMENTS.

Under the Public Health (Scotland) Act, 1897, Section 69, 5 burials were undertaken during the year, 4 males aged 70, 38, 23 years, and 8 months respectively, and 1 female aged 14 months. The total cost amounted to £23 1s. 6d.

APPENDIX.

STATEMENT BY SANITARY INSPECTOR OF PROCEEDINGS UNDER THE PUBLIC HEALTH AND OTHER ACTS DURING 1925.

Subordinate Sanitary Inspectors employed	1

I.—NUISANCES.

Complaints received	367
Intimations served under Sec. 19	182
Notices served under Sec. 20	—
Cases in which legal proceedings were taken	—
Cases in which legal proceedings were successful	—

II.—WORKSHOPS.

Inspections	33
Notices served under Sec. 2 (3) of Factory and Workshop Act, 1901	4
Cases in which legal proceedings were taken	—
Cases in which legal proceedings were successful	—

III.—TENTS AND VANS.

Inspections	16

IV.—UNDERGROUND DWELLINGS.

Reported to Local Authority	—
Notices to Owners (Sec. 74)	—
Cases in which legal proceedings were taken	—
Cases in which legal proceedings were successful	—

V.—COMMON LODGING-HOUSES.

On Register at 31st December, 1925	—
Common Lodging-houses belonging to the Local Authority	—
Inspections between 8 a.m. and 10 p.m.	—
Inspections between 10 p.m. and 8 a.m.	—
Intimations of Irregularities sent to Keepers	—
Cases of Infectious Disease reported to Medical Officer (Sec. 97)	—
Unregistered Premises dealt with	—
Cases in which legal proceedings were taken (breaches of bye-laws, etc.)	—
Cases in which legal proceedings were successful	—

VI.—HOUSES LET IN LODGINGS.

On Register at 31st December, 1925	8
Inspections	183
Cases in which legal proceedings were taken	—
Cases in which legal proceedings were successful	—

VII.—INFECTIOUS DISEASES.

Visits of Inquiry, etc.	109
Patients removed to Hospital	88
Persons removed to House of Reception	—
Notices served under Sec. 50 (2) Notices served under Sec. 53 (2)	11
Intimations to Education Authorities, Teachers, etc.	84
Houses or Premises disinfected	124
Sets of Clothing, Bedding, etc., disinfected or destroyed	15
Cases in which legal proceedings were taken	—
Cases in which legal proceedings were successful	

VIII.—BURIALS.

Burials undertaken in terms of Sec. 69	5

IX.—DAIRIES, COWSHEDS, AND MILKSHOPS.

On Register at 31st December, 1925	27
Inspections	64
Contraventions of Orders or Regulations dealt with	—
Cases in which legal proceedings were taken	—
Cases in which legal proceedings were successful	—

X.—SLAUGHTER-HOUSES AND OFFENSIVE TRADES.

Applications under Sec. 32 for sanction to establish	—
Applications granted	—
Applications under Sec. 33 for Licence or Renewal of Licence	—
Applications granted	—
Public Slaughter-houses (if any) belonging to Local Authority	1
Private Slaughter-houses	—
Unlicensed Slaughter-houses dealt with	—
Inspections of Slaughter-houses	35
Inspections of other Offensive Businesses	26
Number of such other Offensive Businesses at 31st December, 1925	—
Cases in which legal proceedings were taken (breaches of bye-laws, etc.)	—
Cases in which legal proceedings were successful	—

XI.—UNSOUND FOOD.

Inspections under Sec. 43—(a) Meat ...	103
(b) Other Foods ...	382
Seizures of Unsound Food—(a) Meat ...	2
(b) Other Foods	2
Animals or carcasses or articles of food destroyed with owner's consent by or at the instance of the Sanitary Inspector	4
Cases in which owners of Unsound Food were prosecuted ...	—
Convictions in connection with above cases ...	—

XII.—ANALYSIS OF SAMPLES.

	Sale of Food and Drugs Acts	Condensed Milk Regulations	Dried Milk Regulations
	Number	Number	Number
Samples procured for analysis ...	97	3	...
Certified to be genuine ...	89	3	...
Certified to be adulterated ...	8	...	...
Cases in which legal proceedings were taken ...	...	...	...
Cases in which legal proceedings were successful...	...	...	...

XIII.—RAG FLOCK ACT, 1911.

Samples procured for analysis ...	—
Certified to conform to Board's standard	—
Certified not to conform to Board's standard	—
Cases in which legal proceedings were taken	—
Cases in which legal proceedings were successful	—

XIV.—BYE-LAWS.

Inspections in carrying out bye-laws relating to—

(a) Pigstyes	72
(b) Public Conveyances	—
(c) Buildings	—
(d) Cleansing in Special Scavenging Districts	—
(e) Other sanitary matters	—

London School of Hygiene & Tropical Medicine
LIBRARY
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